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NAS WHITING FIELD
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REMEDIAL INVESTIGATION AND FEASIBILITY STUDY PHASE IIA TECHNICAL
MEMORANDUM NUMBER 5 FOR GROUNDWATER ASSESSMENT NAS WHITING FIELD FL
11/1/1995
ABB ENVIRONMENTAL

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REMEDIAL INVESTIGATION AND FEASIBILITY STUDY

PHASE IIA

**TECHNICAL MEMORANDUM NO. 5
GROUNDWATER ASSESSMENT**

**NAVAL AIR STATION WHITING FIELD
MILTON, FLORIDA**

Unit Identification Code: N60508

Contract No. N62467-89-D-0317/050

Prepared by:

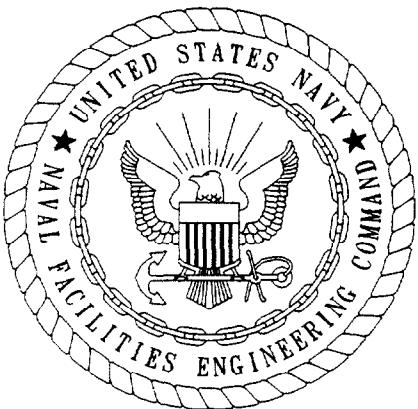
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November 1995



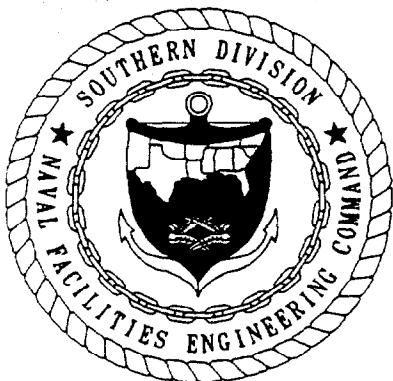
CERTIFICATION OF TECHNICAL
DATA CONFORMITY (MAY 1987)

The Contractor, ABB Environmental Services, Inc., hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0317/050 are complete and accurate and comply with all requirements of this contract.

Date: November 27, 1995

Name and Title of Certifying Official: Terry Hansen, P.G.
Task Order Manager

Name and Title of Certifying Official: Gerald Walker, P.G.
Project Technical Lead



FOREWORD

To meet its mission objectives, the U.S. Navy performs a variety of operations, some requiring the use, handling, storage, or disposal of hazardous materials. Through accidental spills and leaks and conventional methods of past disposal, hazardous materials may have entered the environment in ways unacceptable by today's standards. With growing knowledge of the long-term effects of hazardous materials on the environment, the Department of Defense (DOD) initiated various programs to investigate and remediate conditions related to suspected past releases of hazardous materials at their facilities.

One of these programs is the Installation Restoration (IR) program. This program complies with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as amended by the Superfund Amendments and Reauthorization Act (SARA), the Resource Conservation and Recovery Act (RCRA), and the Hazardous and Solid Waste Amendments (HSWA) of 1984. These acts establish the means to assess and clean up hazardous waste sites for both private-sector and Federal facilities. The CERCLA and SARA acts form the basis for what is commonly known as the Superfund program.

Originally, the Navy's part of this program was called the Naval Assessment and Control of Installation Pollutants (NACIP) program. Early reports reflect the NACIP process and terminology. The Navy eventually adopted the program structure and terminology of the standard IR program.

The IR program is conducted in several stages as follows:

- Preliminary Assessment (PA)
- Site Inspection (SI) (formerly the PA and SI steps were called the Initial Assessment Study (IAS) under the NACIP program),
- Remedial Investigation and Feasibility Study (RI/FS), and
- remedial design and remedial action (RD/RA).

The Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) manages and the U.S. Environmental Protection Agency (USEPA) and the Florida Department of Environmental Protection (FDEP; formerly Florida Department of Environmental Regulation [FDER]) oversee the Navy environmental program at Naval Air Station (NAS) Whiting Field. All aspects of the program are conducted in compliance with State and Federal regulations, as ensured by the participation of these regulatory agencies.

Questions regarding the CERCLA program at NAS Whiting Field should be addressed to Mr. Jeff Adams, Code 1859, at (803) 743-0341.

EXECUTIVE SUMMARY

A Remedial Investigation and Feasibility Study (RI/FS) is being conducted at the Naval Air Station (NAS) Whiting Field facility in Milton, Florida, by Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) as part of the Department of Defense Installation Restoration (IR) program. The IR program was designed to identify and abate or control contaminant migration resulting from past operations at naval installations.

A phased approach was implemented to conduct the Remedial Investigation (RI). Phase I was completed in May 1992. The subsequent phase of the RI was designated as Phase IIA. Field work for Phase IIA was completed in March 1994. Technical Memorandum No. 5, Groundwater Assessment, is the fifth in a series of seven technical memoranda that summarizes the results of the data gathered during the RI Phase IIA. These memoranda will form the supporting basis for the RI report and any additional work to be completed at the facility.

The purpose of the RI soil assessment is to characterize site-specific and facility-wide groundwater contamination at NAS Whiting Field. Data obtained from this assessment will be used to evaluate the nature and extent of groundwater contamination and to support feasibility studies and the baseline risk assessment to be conducted later in the RI/FS program.

The field work for the groundwater assessment was conducted between April 1992 and February 1994. The groundwater field program included the collection of 14 *in situ* Bengt-Arne-Torstensson (BAT) groundwater samples and collection of groundwater samples from 112 monitoring wells. *In situ* groundwater samples were analyzed for volatile organic compounds (VOCs) (U.S. Environmental Protection Agency [USEPA] Method 8240) and target analyte list (TAL) inorganics. Groundwater samples collected from monitoring wells were analyzed for target compound list (TCL) VOCs, TCL semivolatile organic compounds (SVOCs), TCL pesticides and PCBs, and TAL inorganics.

The findings of the groundwater assessment conducted at NAS Whiting Field indicate the following.

BAT Groundwater Samples

- Ten VOCs were detected in shallow BAT groundwater samples and seven VOCs were detected in deep zone groundwater samples at locations between the South Field Hangar Area and Sites 15 and 16.

Facility-wide Background Groundwater Samples

- Two VOCs (benzene and acetone) and one pesticide compound (beta benzene hexachloride) were detected in the background groundwater samples. The benzene concentration exceeded the State maximum contaminant level (MCL) of 1 microgram per liter ($\mu\text{g/l}$). Six inorganic analytes detected in the background groundwater samples exceed Federal and State MCLs.

North Field Industrial Area Groundwater Samples

- Site 3. Six VOCs, one SVOC, and five inorganic analytes were detected at concentrations that exceeded Federal and State MCLs.

- Site 4. Four VOCs, one SVOC, and four inorganic analytes were detected at concentrations that exceeded Federal and State MCLs.
- Site 32. Five VOCs, one SVOC, and eight inorganic analytes were detected at concentrations that exceeded Federal and State MCLs.

Midfield Industrial Area

- Site 5. Three VOCs, one SVOC, and eight inorganic analytes were detected at concentrations that exceeded the Federal and State MCLs.
- Site 6. Two VOCs, one SVOC, and five inorganic analytes were detected at concentrations that exceeded Federal and State MCLs.
- Site 33. Two VOCs and five inorganic analytes were detected at concentrations that exceeded Federal and State MCLs.

South Field Industrial Area

- Site 7. Six VOCs and six inorganic analytes were detected at concentrations that exceeded Federal and State MCLs.
- Site 29. Seven inorganic analytes were detected at concentrations that exceeded Federal and State MCLs.
- Site 30. Three VOCs and six inorganic analytes were detected at concentrations that exceeded Federal and State MCLs.

Northwest Disposal and Crash Crew Area

- Site 1. Seven inorganic analytes were detected at concentrations that exceeded Federal and State MCLs.
- Site 2. One SVOC and three inorganic analytes were detected at concentrations that exceeded Federal and State MCLs.
- Site 17. One SVOC and five inorganic analytes were detected at concentrations that exceeded Federal and State MCLs.
- Site 18. Three inorganic analytes were detected at concentrations that exceeded Federal and State MCLs.

Southeast Disposal Area

- Site 9. Two inorganic analytes were detected at concentrations that exceeded Federal and State MCLs.
- Site 10. Two inorganic analytes were detected at concentrations that exceeded Federal and State MCLs.
- Site 11. Four inorganic analytes were detected at concentrations that exceeded Federal and State MCLs.
- Site 12. One inorganic analyte was detected at a concentration that exceeded Federal and State MCLs.

- Site 13. One SVOC and four inorganic analytes were detected at concentrations that exceeded Federal and State MCLs.
- Site 14. One SVOC and two inorganic analytes were detected at concentrations that exceeded Federal and State MCLs.

Southwest Disposal Area

- Site 15. One SVOC and four inorganic analytes were detected at concentrations that exceeded Federal and State MCLs.
- Site 16. Three VOCs, one SVOC, and seven inorganic analytes were detected at concentrations that exceeded Federal and State MCLs.

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GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
ARARs	applicable or relevant and appropriate requirements
ASTM	American Society for Testing and Materials
AVGAS	aviation gasoline
BAT	Bengt-Arne-Torstensson
BEHP	bis(2-ethylhexyl)phthalate
BHC	benzene hexachloride
bls	below land surface
BTEX	benzene, toluene, ethylbenzene, and xylenes
BTOC	below top of casing
CAS	Chemical Abstract Service
CAR	contamination assessment report
CCJM	C.C. Johnson & Malhotra Environmental Engineers and Scientists
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CLP	Contract Laboratory Program
CRDLs	contract required detection limits
CRQLs	contract required quantitation limits
DCA	dichloroethane
DCE	dichloroethene
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethene
DDT	dichlorodiphenyltrichloroethane
DQOs	data quality objectives
°C	degrees Celsius
EDB	ethylene dibromide
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FDER	Florida Department of Environmental Regulation
FDWS	Florida Primary and Secondary Drinking Water Standards
FGS	Florida Geological Survey
ft/day	feet per day
ft ² /day	square feet per day
g-BHC	gamma benzene hexachloride
gpm	gallons per minute
HRS	Hazard Ranking System
HSA	hollow stem auger
IAS	Initial Assessment Study
ICV	initial calibration verification
ID	inside diameter
IDL	instrument detection limit
IR	Installation Restoration

GLOSSARY (Continued)

LCS	laboratory control sample
MCLG	maximum contaminant level goal
MCL	maximum contaminant level
MDL	method detection limit
mg/l	milligrams per liter
ml	milliliter
MR	mud rotary
msl	mean sea level
MS/MSD	matrix spike/matrix spike duplicate
$\mu\text{g/l}$	micrograms per liter
$\mu\text{mhos/cm}$	micromhos per centimeter
NAS	Naval Air Station
NCP	National Oil and Hazardous Substances Contingency Plan
NEESA	Naval Energy and Environmental Support Activity
NFA	no further action
NPL	National Priorities List
NTUs	nephelometric turbidity units
NFWFMD	Northwest Florida Water Management District
OD	outside diameter
OLF	Outlying Landing Field
OVA	organic vapor analyzer
PA	Preliminary Assessment
PARCC	precision, accuracy, representativeness, completeness, and comparability
PCB	polychlorinated biphenyl
PCE	tetrachloroethene
PCPT	piezometer penetrometer
PVC	polyvinyl chloride
%D	percent difference
%RSD	percent relative standard deviation
QA	quality assurance
QAPP	Quality Assurance Project Plan
QC	quality control
RI/FS	remedial investigation/feasibility study
RPD	relative percent difference
RRF	relative response factors
SARA	Superfund Amendments and Reauthorization Act
SDG	sample delivery group
SDWA	Safe Drinking Water Act
SI	Site Inspection
SMCLs	secondary maximum contaminant level
SOPs	Standard Operating Procedures
SOPQAM	Standard Operating Procedures and Quality Assurance Manual

GLOSSARY (Continued)

SOUTHNAV-	Southern Division, Naval Facilities Engineering Command
FACENGCOM	
SOW	statement of work
SPCC	system performance check compounds
SQLs	sample quantitation limits
SU	standard unit
SVOCs	semivolatile organic compounds
TAL	target analyte list
TCA	trichloroethane
TCE	trichloroethene
TCL	target compound list
TOC	top of casing
TRAWING	
FIVE	Training Air Wing Five
USEPA	U.S. Environmental Protection Agency
USCS	Unified Soil Classification System
USGS	U.S. Geological Survey
UST	underground storage tank
VOCs	volatile organic compounds
VS	Verification Study

1.0 INTRODUCTION

ABB Environmental Services, Inc. (ABB-ES), under contract to the Department of the Navy, is submitting Technical Memorandum No. 5 for Phase IIA of the Remedial Investigation and Feasibility Study (RI/FS) for Naval Air Station (NAS) Whiting Field located in Milton, Florida, to Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM). The RI/FS is being conducted under contract No. N62467-89-D-0317.

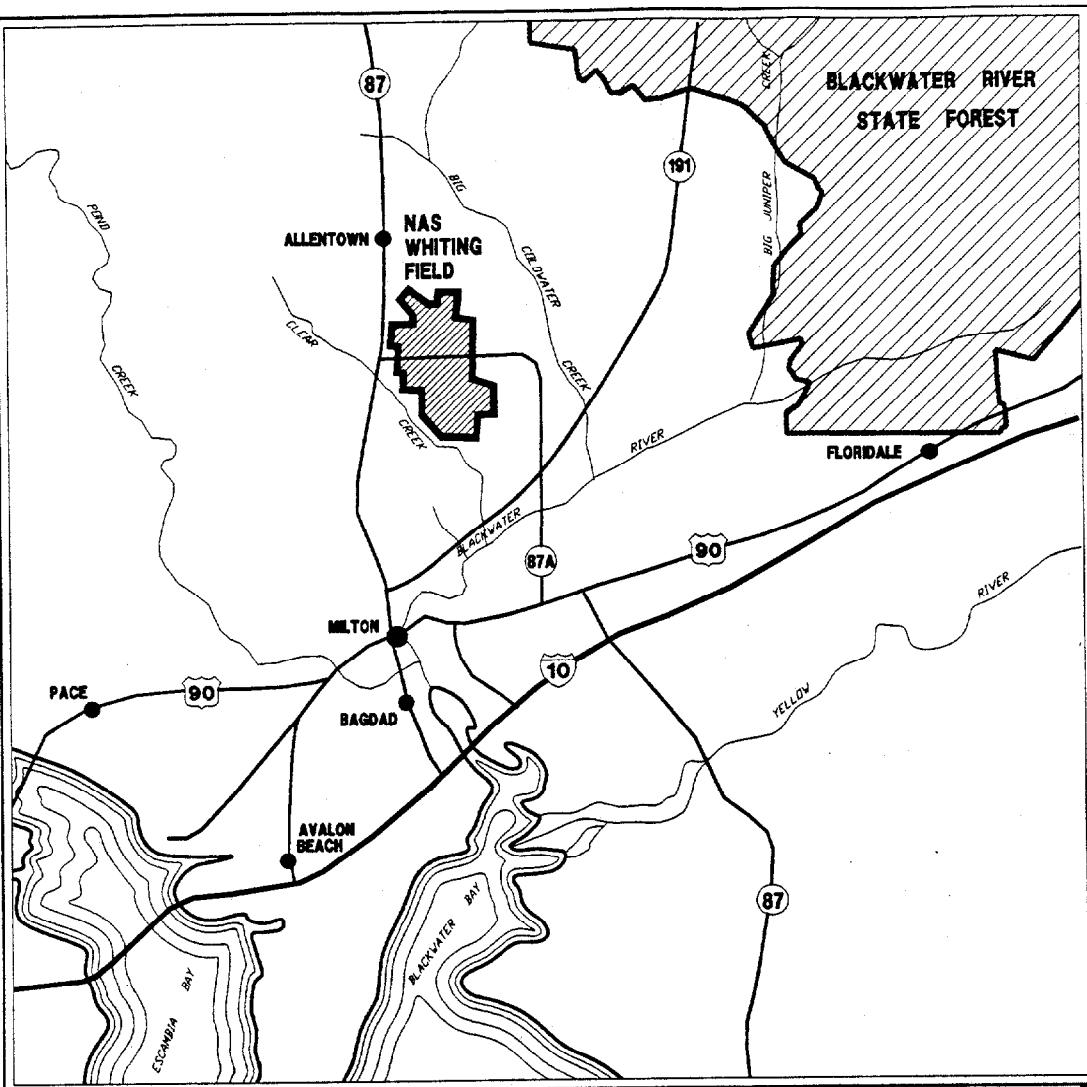
Technical Memorandum No. 5, Groundwater Assessment, is the fifth in a series of seven technical memoranda that summarize the results and transmit data gathered during the Phase IIA RI. These technical memoranda form the supporting basis for the RI report and any additional work to be completed at NAS Whiting Field. The Phase IIA, RI field program was conducted between April 1992 and February 1994. The following is a complete list of the technical memoranda:

- No. 1, Surface Water and Sediment Assessment
- No. 2, Geologic Assessment
- No. 3, Soil Assessment
- No. 4, Hydrogeologic Assessment
- No. 5, Groundwater Assessment
- No. 6, Definition of Operable Units
- No. 7, Workplan and Recommendations for RI Phase IIB

Installation Location and Description. NAS Whiting Field is located in Santa Rosa County, which is in Florida's northwest coastal area, approximately 7 miles north of Milton and 20 miles northeast of Pensacola (Figure 1-1). NAS Whiting Field presently consists of two air fields separated by an industrial area. The installation covers approximately 2,560 acres. Figure 1-2 presents the installation layout and location of sites at NAS Whiting Field.

NAS Whiting Field, home of Training Air Wing Five (TRAWING FIVE), was constructed in the early 1940s. Subordinate commands currently stationed at NAS Whiting Field include training squadrons VT-2, VT-3, VT-6, HT-8, and HT-18. NAS Whiting Field was commissioned as the Naval Auxiliary Air Station Whiting Field in July 1943 and has served as a naval aviation training facility ever since. The field's mission has been to train student naval aviators in the use of basic instruments, formation and tactic phases of fixed-wing propeller-driven aircraft, and basic and advanced helicopter training.

1.1 PURPOSE OF THE REMEDIAL INVESTIGATION AND FEASIBILITY STUDY (RI/FS). The purpose of the RI/FS is to identify and address adverse risks to human health and the environment that might be posed by toxic or hazardous chemicals present onsite as a result of past waste disposal practices or spills. To achieve this objective, an RI has been conducted to assess the nature and distribution of chemicals associated with a number of sites at the installation. The data collected during the RI field program will be used in the FS to screen, evaluate, and select remedial alternatives to provide permanent, feasible solutions to environmental contamination problems at NAS Whiting Field.



MAP LOCATION

Source: ABB Environmental Services Inc. 1992b

0 2.5 5 MILES

SCALE: 1 INCH = 5 MILES

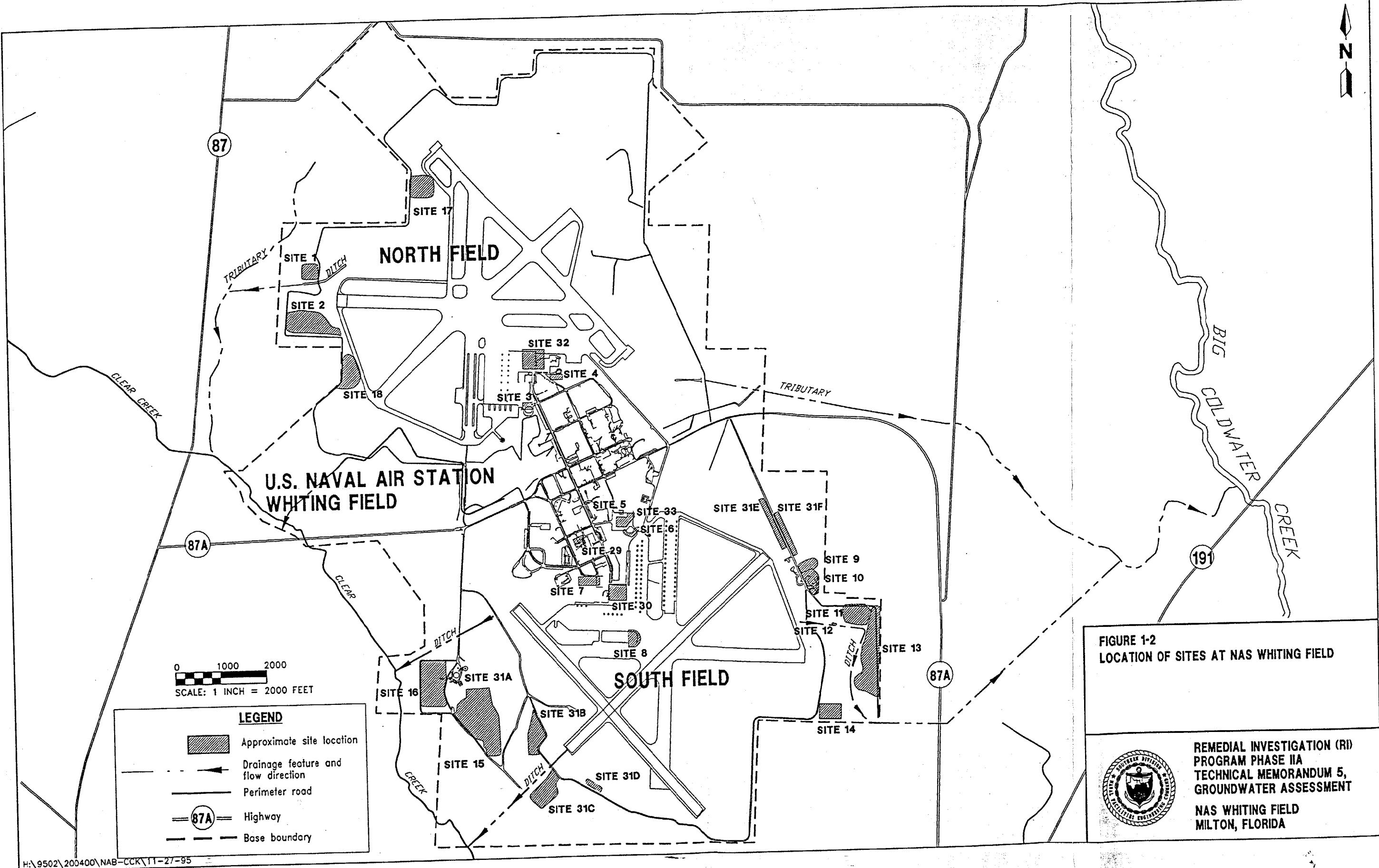
**FIGURE 1-1
FACILITY LOCATION MAP**

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**REMEDIAL INVESTIGATION (RI)
PROGRAM PHASE II A
TECHNICAL MEMORANDUM 5,
GROUNDWATER ASSESSMENT**

**NAS WHITING FIELD
MILTON, FLORIDA**



00237E01Z

The Navy Installation Restoration (IR) program was designed to identify and abate or control contaminant migration resulting from past operations at naval installations. The IR program is the Navy response authority under Section 120 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986 and Executive Order 12580. CERCLA requires that Federal facilities comply with the act, both procedurally and substantively. SOUTHNAVFACENGCOM is the agency responsible for the Navy IR program in the southeastern United States. Therefore, SOUTHNAVFACENGCOM has the responsibility to process NAS Whiting Field through Preliminary Assessment (PA), Site Investigation (SI), priority listing, RI/FS, and remedial response selection in compliance with the guidelines of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 Code of Federal Regulations [CFR] 300).

Section 105(a)(8)(A) of SARA required the U.S. Environmental Protection Agency (USEPA) to develop criteria to set priorities for remedial action based on relative risk to public health and the environment. To meet this requirement, USEPA has established the Hazard Ranking System (HRS) as Appendix A to the NCP. First promulgated in 1982, the HRS was amended in December 1990, effective March 14, 1991 (55 Federal Register No. 241:51532-51667), to comply with requirements of Section 105(c)(1) of SARA to increase the accuracy of the assessment of relative risk.

The HRS score for NAS Whiting Field was generated in 1993. The score was sufficient to place NAS Whiting Field on the National Priority List (NPL). In January 1994, the USEPA placed NAS Whiting Field on a proposed list of sites to be included on the NPL (40 CFR 300, Federal Register, 18 January 1994), and on May 31, 1994, NAS Whiting Field was placed on the NPL effective June 30, 1994 (40 CFR 300, Federal Register, May 31, 1994). As a result, the RI/FS for NAS Whiting Field must follow the requirements of the NCP, as amended by SARA, and guidance for conducting RI/FS under CERCLA.

1.2 ENVIRONMENTAL SETTING.

1.2.1 Topography NAS Whiting Field is located within the boundaries of the Northwest Florida Water Management District (NFWFMD), which encompasses the entire Florida panhandle. The topography of northwest Florida is the result of 25 million years of stream erosion, deposition, and wave action during periods when the shoreline exceeded its present level. NAS Whiting Field is located on a local upland area with elevations ranging approximately 35 to 200 feet above sea level. The facility is bounded by low-lying receiving waters: Clear Creek to the west and south and Big Coldwater Creek to the east. These two streams are tributaries of the Blackwater River, which discharges to the estuarine waters of the East Bay of the Escambia Bay coastal system.

1.2.2 Regional Geologic and Hydrogeologic Setting The majority of Santa Rosa County, including NAS Whiting Field, is located in the Western Highland subdivision of the Coastal Plain Physiographic Province. The Coastal Plain Province is a major physiographic division of the United States that extends eastward from Texas to as far north as New York (Marsh, 1966). The Coastal Plain is primarily underlain by beds of sand, silt, clay, and limestone that gently dip toward the coast. Most of these sediments were deposited during periods of prehistoric sea level fluctuations. The Western Highland subdivision consists

of a well-drained southward sloping plateau that has been eroded by numerous streams. Three marine shorelines can be recognized from existing topographic profiles across Escambia and Santa Rosa Counties.

Groundwater in northwest Florida occurs within three major zones. These zones are referred to as aquifer systems and include the surficial aquifer system (referred to as the sand-and-gravel aquifer in the western panhandle), the intermediate aquifer system, and the Floridan aquifer system (NFWFMD, 1982; Scott, 1992).

The Sand-and-Gravel Aquifer. The sand-and-gravel aquifer is the major water-bearing unit in Santa Rosa County and the only aquifer that has been studied to date in the IR program. The aquifer consists of a complex sequence of sand, gravel, silt, and clay believed to be between 200 and 350 feet thick in the vicinity of the installation (Musgrove, 1965). Water in the saturated zones of the sand-and-gravel aquifer is usually unconfined; therefore, the saturated zone is free to rise and decline with seasonal variation of precipitation (recharge) and discharge to stream valleys. The presence of interbedded clay layers often creates localized artesian conditions where the less permeable clay confines water within the aquifer below the clay layer. The confining unit restricts the vertical movement of water into or out of the aquifer zone. The water level or potentiometric surface of a confined aquifer is above the confining unit; it is higher than the land surface into which the aquifer flows as a spring or a free-flowing well. In some areas, the aquifer may be subdivided into upper and lower zones, which are separated by layers of clay or clayey sand. These semiconfining layers are typically leaky, and the upper part serves as the primary source of water to the more productive lower zone of the aquifer. Groundwater can potentially move laterally along the semiconfining layers until it discharges into the local stream or other surface water features (NFWFMD, 1991; Scott, 1992).

Virtually all of the groundwater used in Santa Rosa County is drawn from the sand-and-gravel aquifer. The aquifer is recharged entirely by rainfall. The western Florida Panhandle receives between 55 to 67 inches of rainfall per year (NFWFMD, 1988). Approximately 60 percent of the total volume of rainfall is returned to the water cycle by evapotranspiration before entering the aquifer systems. Rainfall is generally highest in the summer months and lowest in fall and winter. Water level readings generally correspond to the amount of rainfall received prior to the water level survey.

The water quality of the sand-and-gravel aquifer is satisfactory for most uses. The concentrations of naturally occurring dissolved minerals is low due to the insolubility of the predominantly quartz sand through which the water migrates. However, rainwater dissolves carbon dioxide in the atmosphere, thus creating carbonic acid, which lowers the pH of the groundwater. The pH may fall as low as 5.0 in some areas, which may locally result in high concentrations of iron (Florida Geological Survey [FGS], 1992).

Hydraulic properties of the sand-and-gravel aquifer were studied throughout Escambia County (NFWFMD, 1991). The study included transmissivity, hydraulic conductivity, thickness, and storativity. The results indicated that the transmissivity of the main producing zone is variable throughout the county (5,000 to 20,000 square feet per day [ft^2/day]) and that the values from the western part of the county fall within the lower end of the range. The average storativity for the main producing zone is on the order of 1×10^{-4} (dimensionless).

Transmissivity calculated from multi-well aquifer tests ranged from 5,800 to 7,800 ft²/day with storage coefficients of 2.9×10^{-4} to 5.7×10^{-4} (dimensionless).

Much less information is available on the hydraulic properties of the shallower permeability zones (studied as part of the IR at the installation). Pumping tests completed by NWFWM in 1986 estimated vertical hydraulic conductivity of the lower permeability zone ranged from 0.03 feet per day (ft/day) to 1.3 ft/day.

In addition, a pumping test was conducted at the facility in March 1991. The pumping test was conducted on facility production well W-S2 and the aquifer characteristics calculated are as follows:

transmissivity, 10,000 to 20,000 ft²/day;
hydraulic conductivity, 100 to 150 ft/day; and
storativity, 0.045 to 0.08 (dimensionless).

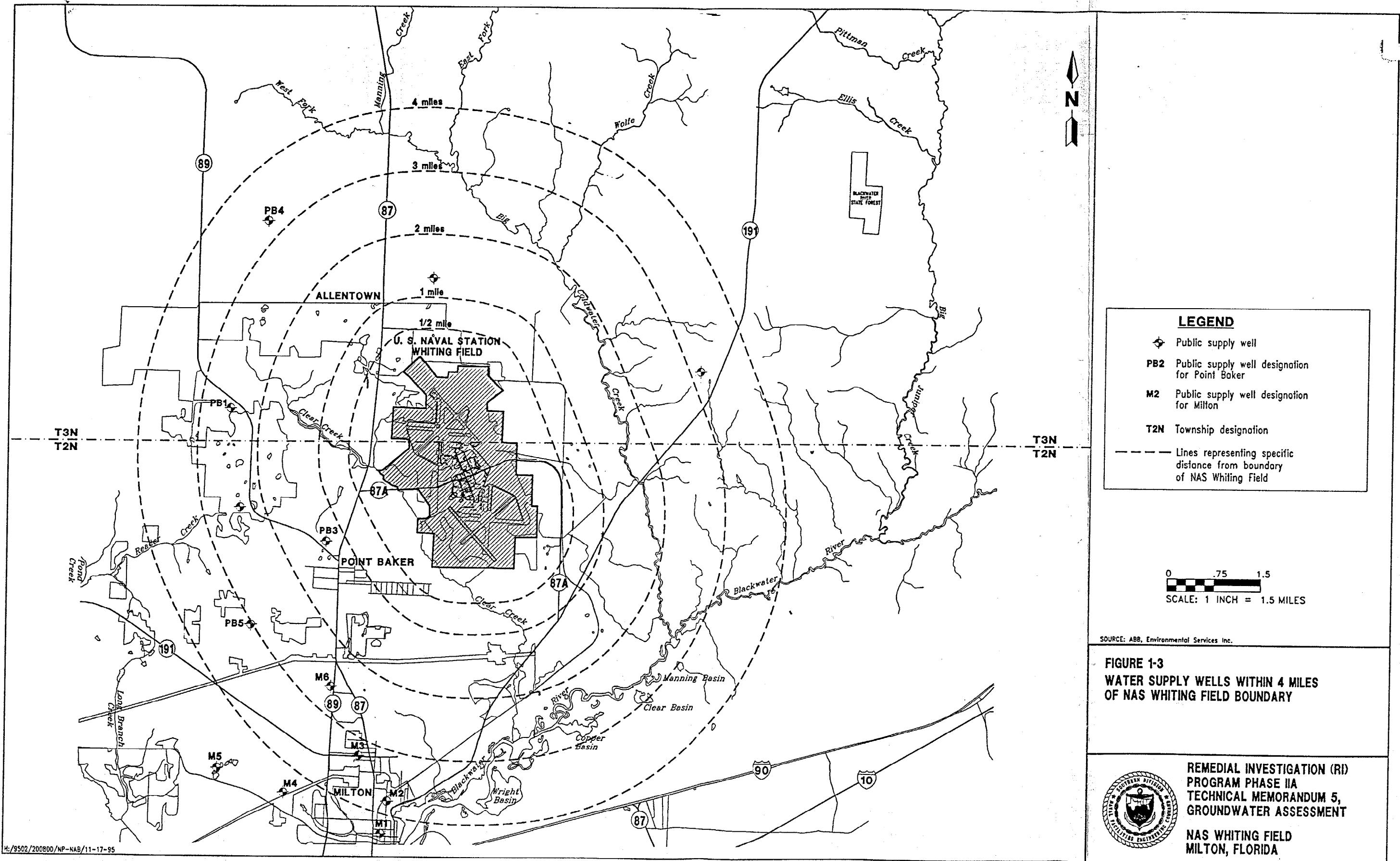
The Intermediate Aquifer System. The intermediate aquifer system in Escambia and Santa Rosa Counties is not a significant water-bearing unit because it functions as a confining layer between the sand-and-gravel and Upper Floridan aquifer (Scott, 1992). In the vicinity of the installation, the upper Pensacola clay is absent, thus rendering the Escambia sand (if present) indistinguishable from the sediments of the sand-and-gravel aquifer (Musgrove and others, 1965).

The Floridan Aquifer System. The Floridan aquifer system is present throughout the extent of the NWFWM. The system is over 1,000 feet thick in the vicinity of the installation. In Santa Rosa and Escambia Counties, the system consists of an upper and lower aquifer separated by a confining layer (the Bucatuna Clay of the Byram Formation). The carbonate sequence containing the upper and lower Floridan aquifer system dips below the level of the Gulf of Mexico in the area and becomes saline. Additionally, the carbonate rock is highly soluble in the acidic groundwater, which causes the water to be highly mineralized. Consequently, the aquifer is not commonly used as a source of water in the western part of the Florida Panhandle (Scott, 1992).

1.2.3 Inventory of Local Potable Water Wells An inventory of potable water wells near NAS Whiting Field was conducted as part of a preliminary HRS scoring performed by ABB-ES in May 1991.

All potable and industrial water supplies in the NAS Whiting Field vicinity are obtained from the sand-and-gravel aquifer. This aquifer extends from the surface to an approximate depth of 300 feet below land surface (bls). Screened intervals of most production wells are at a depth of approximately 150 to 350 feet bls. Figure 1-3 presents the location of public supply wells within 4 miles of NAS Whiting Field.

Water for the city of Milton is supplied by five separate production wells. All of these water supply wells are within 5 miles of NAS Whiting Field. The Point Baker-Allentown area municipal water system consists of seven production wells, four of which are within 5 miles of NAS Whiting Field.



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At NAS Whiting Field, potable water is currently supplied by three production wells: the north (W-N4), south (W-S2), and west (W-W3) production wells. The locations of the wells are shown on Figure 1-3, and well completion details are provided in Table 1-1.

Table 1-1
Construction Detail for Current Facility Potable Supply Wells

Remedial Investigation and Feasibility Study, Phase IIA
Technical Memorandum No. 5, Groundwater Assessment
NAS Whiting Field, Milton, Florida

Well Designation	Date Installed	Casing Diameter	Surface Elevation (ft/msl)	Total Depth (ft/bls)	Total Depth (ft/msl)
W-N4	1975	12	180.0	218	-38
W-W3	1965	NA	180.0	215	-38
W-S2	1951	NA	181.84	341	-159

Notes: ft = feet.

msl = mean sea level.

bls = below land surface.

NA = not available.

Current average pumping capacities from the facility production wells include: north well (W-N4), 600 gallons per minute (gpm); west well (W-W3), 700 gpm; and south well (W-S2), 500 gpm (ABB-ES, 1993). At the request of the Florida Department of Environmental Protection (FDEP), supply well W-S2 was shut down on August 28, 1986, because concentrations of benzene in the produced groundwater exceeded the Florida primary drinking water standard of 1 microgram per liter ($\mu\text{g/l}$). Production well W-W3 was also shut down on September 25, 1986, because concentrations of trichloroethene were greater than 3 $\mu\text{g/l}$. The wells were reactivated after installation of groundwater treatment systems. The treatment systems consist of granular activated carbon treatment at the wellhead followed by chlorination, pH adjustment, and addition of a sequestering agent to reduce iron precipitation.

The NAS Whiting Field water supply system operated from only the north production well (W-N4) throughout most of 1987. Testing of an activated carbon adsorption filtration system ability to adequately treat water from the west well (W-W3) began on November 3, 1987. Upon completion of the operational tests on December 1, 1987, the west well was returned to service. An activated carbon filtration system similar to the system at W-W3 was installed at the south production well (W-S2) in early 1990.

1.3 PREVIOUS FACILITY INVESTIGATIONS. Numerous investigations have been conducted at NAS Whiting Field prior to the implementation of the Phase IIA RI/FS (Table 1-2). Previous studies include an initial assessment study (IAS), confirmation study, and a consent order. Phase I of the RI was completed in response to CERCLA requirements. The study under the consent order focused on the Battery Acid Seepage Pit (Site 5) and was initiated under a consent order with the Florida Department of Environmental Regulation (FDER; FDER has since been redesignated as the FDEP). Investigations also have been completed under the

Table 1-2
Summary of Site Investigations

Remedial Investigation and Feasibility Study, Phase IIA
Technical Memorandum No. 5, Groundwater Assessment
NAS Whiting Field, Milton, Florida

Site Number	Site Name	Previous Studies			RI/FS Phase I	RI/FS Phase IIA	Navy's UST Program
		IAS	Verification Study	Consent Order			
1	Northwest Disposal Area	*	*		*	*	
2	Northwest Open Disposal Area	*				*	
3	Underground Waste Solvent Storage Area	*	*		*	*	
4/1467	North AVGAS Tank Sludge Disposal Area	*	*			*	*
5	Battery Acid Seepage Pit	*		*		*	
6	South Transformer Oil Disposal Area	*	*		*	*	
7/1466	South AVGAS Tank Sludge Disposal Area	*	*			*	*
8	AVGAS Fuel Spill Area	*	*				(1)
9	Waste Fuel Disposal Pit	*	*		*	*	
10	Southeast Open Disposal Area (A)	*	*		*	*	
11	Southeast Open Disposal Area (B)	*	*		*	*	
12	Tetraethyl Lead Disposal Area	*	*		*	*	
13	Sanitary Landfill	*	*		*	*	
14	Short-Term Sanitary Landfill	*	*		*	*	
15	Southwest Landfill	*	*		*	*	
16	Open Disposal and Burning Area	*	*		*	*	
17	Crash Crew Training Area		*		*	*	
18	Crash Crew Training Area		*		*	*	
29	Auto Hobby Shop					*	
30	South Field Maintenance Hangar Area					*	
31	Sludge Drying Beds and Disposal Areas					*	
32	North Field Maintenance Hangar Area					*	
33	Midfield Maintenance Hangar Area					*	

¹ No Further Action (NFA) decision received.

Notes: IAS = Initial Assessment Study.

RI/FS = Remedial Investigation and Feasibility Study.

UST = underground storage tank.

4/1467 = remedial investigation site designation and underground storage tank site designation.

AVGAS = aviation gasoline.

Navy's underground storage tank (UST) program on three petroleum sites: Site 4, North Aviation Gasoline (AVGAS) Tank Sludge Disposal Area; Site 7, South AVGAS Tank Sludge Disposal Area; and Site 8, AVGAS Fuel Spill Area.

Initial Assessment Study, 1985. Historical records reviewed during the IAS indicated that throughout its years of operation, NAS Whiting Field has generated a variety of wastes related to pilot training, the operation and maintenance of aircraft and ground support equipment, and the facility maintenance programs. Figure 1-2 provides a map showing the location of all sites that have been identified for investigation at NAS Whiting Field.

Interviews with facility personnel and record reviews indicated that, prior to the establishment of hazardous waste management programs and programs to recycle waste oil during the 1970s, most of the hazardous wastes were reportedly disposed of onsite. Waste materials were disposed of either in dumpsters that were emptied into onsite disposal areas or they went into waste oil bowsers, which probably were used for crash crew training. Envirodyne Engineers (1985) estimated that thousands of gallons of wastes including waste paints, paint thinners, solvents, waste oils, waste gasoline, hydraulic fluids, AVGAS, tank bottom sludges, polychlorinated biphenyl (PCB) transformer fluids, and paint stripping wastewater were potentially dumped into onsite disposal areas. These disposal areas consisted of natural or manmade depressions located within the confines of the air station. In addition to the waste materials routinely disposed of onsite in the disposal areas, additional materials were reportedly released onsite as the result of accidents or equipment failure.

Based on a review of historical data, aerial photographs, field inspections, and interviews with facility personnel, 16 potentially contaminated disposal or spill sites and/or sources for contaminant migration were initially identified at NAS Whiting Field by the IAS team.

The IAS report concluded that 15 of the 16 sites warranted further investigation, under the Navy's IR program, to assess potential long-term impacts. Only one site, Site 2, the Northwest Open Disposal Area, was determined not to warrant further consideration.

To evaluate the 15 sites requiring further investigation, a confirmation study, including sampling and monitoring of the sites, was recommended in the IAS to confirm the presence or absence of suspected contamination and to further quantify the extent of any problems that might exist.

Confirmation Study, 1985-1986. The confirmation study consisted of two parts: verification and characterization. In November 1985, Geraghty & Miller, Inc., prepared for the Navy a plan of action for the verification study entitled Naval Assessment and Control of Installation Pollutants, Verification Study, NAS Whiting Field, which was subsequently submitted to the FDER. This plan outlined the details of the proposed scope of work for the verification study. In December 1985 during discussions with FDER, two additional sites (Sites 17 and 18) were added to the verification study. Both sites, in use in 1985, were locations where waste fuels and solvents were burned in crash crew training exercises.

The verification study included the installation and sampling of 16 monitoring wells. The wells were sampled and analyzed for priority pollutant volatile organic compounds (VOCs), priority pollutant semivolatile organic compounds (SVOCs), priority pollutant pesticides, PCBs plus selected herbicides, and priority pollutant inorganic analytes. Table 1-3 presents construction details

Table 1-3
Construction Details for Monitoring Wells Installed During the
Verification Study, RI Phase I, and UST Investigations

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Monitoring Well No.	Depth Completion Zone*	Land Surface Elevation (ft msl)	Well Elevation (TOC) (ft msl)	Well Depth (ft BTOC)	Screened Interval (ft BTOC)	Screened Interval (ft msl)
Verification Study and Remedial Investigation (RI) Phase I						
WHF-1-1	I	140.49	143.62	123	113 to 123	27 to 17
WHF-3-1	I	173.43	174.92	153	143 to 153	31 to 21
WHF-3-2	I	173.32	175.37	153	143 to 153	32 to 22
WHF-3-3	I	175.72	178.18	154	149 to 154	28 to 23
WHF-4-1	I	170.42	172.45	153	143 to 153	29 to 19
WHF-5-OW-1	D	182.48	185.80	177	172 to 177	14 to 9
WHF-5-OW-2	I	182.78	186.02	126	121 to 126	61 to 55
WHF-5-3	I	182.02	184.22	150	137 to 147	47 to 37
WHF-7-1	I	185.06	187.75	143	133 to 143	44 to 34
WHF-8-1	I	172.31	173.14	180	170 to 180	2 to -7
WHF-9-1	I	144.66	146.55	118	108 to 118	39 to 29
WHF-9-2	I	158.11	161.07	124	114 to 124	44 to 36
WHF-10-1	I	144.19	146.73	118	108 to 118	39 to 29
WHF-11-1	I	122.48	124.86	128	118 to 128	7 to -2
WHF-11-1S	S	114.91	116.65	54	39 to 54	78 to 63
WHF-12-1	I	134.20	136.40	113	103 to 113	33 to 23
WHF-13-1	I	100.40	102.66	122	112 to 122	-9 to -19
WHF-14-1	I	137.83	139.69	153	143 to 153	-3 to -13
WHF-15-1	I	64.17	66.35	73	63 to 73	4 to -6
WHF-16-1	I	47.47	50.04	43	33 to 43	17 to 7
WHF-16-2	I	79.38	82.19	74	69 to 74	12 to 7
WHF-17-1	I	192.61	194.71	159	149 to 159	45 to 35
WHF-18-1	I	161.56	163.57	120	110 to 120	54 to 44
Underground Storage Tank Investigations						
North Field Area (Site 4 Site 1467/RI)						
WHF-1467-1	S	168.8	168.51	97	82 to 97	87 to 72
WHF-1467-2	S	157.7	157.44	85	70 to 85	87 to 72
WHF-1467-2D	I	NA	NA	123	NA	NA
WHF-1467-3	S	157.4	157.25	95	80 to 95	77 to 62
WHF-1467-4	S	175.0	174.64	103	88 to 103	86 to 71
WHF-1467-5	S	173.5	173.27	100	85 to 100	88 to 73
WHF-1467-5D	I	177.8	171.77	140	125 to 140	46 to 31
WHF-1467-6	S	176.8	176.54	103	88 to 103	58 to 43
WHF-1467-6D	I	166.4	166.23	102	97 to 102	69 to 63

See notes at end of table.

Table 1-3 (Continued)
Construction Details for Monitoring Wells Installed During the
Verification Study, RI Phase I, and UST Investigations

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Monitoring Well No.	Depth Completion Zone*	Land and Surface Elevation (ft msl)	Well Elevation (TOC) (ft msl)	Well Depth (ft BTOC)	Screened Interval (ft BTOC)	Screened Interval (ft BTOC)
North Field Area (RI Site 4/Site 1467)—continued						
WHF-1467-7	S	157.7	157.48	85	70 to 85	87 to 72
WHF-1467-7D	I	158.5	158.18	129	124 to 129	34 to 29
WHF-1467-8	S	173.5	173.24	107	92 to 107	81 to 66
WHF-1467-8D	I	169.2	168.85	127	112 to 127	57 to 42
WHF-1467-9	S	163.3	162.99	100	85 to 100	77 to 62
WHF-1467-11	S	156.9	156.49	90	75 to 90	81 to 66
WHF-1467-13R	S	164.9	164.57	90	75 to 90	90 to 75
WHF-1467-14	S	174.7	174.47	110	95 to 110	79 to 64
WHF-1467-15	S	NA	115.50	108	93 to 108	23 to 8
WHF-1467-16	S	177.6	177.05	115	100 to 115	77 to 62
WHF-1467-17	S	NA	115.00	106	91 to 106	24 to 9
WHF-1467-18	S	175.4	175.12	115	100 to 115	75 to 60
WHF-1467-19	S	169.8	169.33	105	90 to 105	79 to 64
WHF-1467-20	S	172.5	172.26	110	95 to 110	77 to 62
WHF-1467-21	S	174.3	173.93	111	96 to 111	77 to 62
WHF-1467-22R	S	172.7	172.38	103	88 to 98	84 to 74
WHF-1467-23	S	172.8	172.57	101	91 to 101	86 to 71
WHF-1467-24	S	170.1	169.77	100	85 to 95	84 to 69
WHF-1467-25	S	160.9	160.85	91	75 to 90	84 to 69
WHF-1467-26	S	166.5	166.28	90	73 to 83	86 to 76
WHF-1467-27	S	174.1	173.74	116	100 to 115	72 to 57
WHF-1467-28	S	173.3	173.03	106	90 to 105	82 to 67
WHF-1467-29	S	169.1	168.96	100	80 to 95	83 to 68
WHF-1467-30	S	174.4	174.23	102.5	87 to 102	86 to 71
WHF-1467-31	S	171.6	171.21	125	99 to 114	61 to 46
WHF-1467-32	S	162.8	162.31	100	82 to 97	77 to 62
WHF-1467-33	S	170.1	169.86	84	69 to 74	100 to 85
South Field Area (RI Site 7/Site 1466)						
WHF-1466-1	S	178.1	177.79	135	120 to 135	57 to 42
WHF-1466-1D	I	191.6	191.24	158	153 to 158	38 to 33
WHF-1466-2	S	181.0	180.72	120	105 to 120	75 to 60
WHF-1466-2D	I	190.4	190.03	144	139 to 144	51 to 46
See notes at end of table.						

Table 1-3 (Continued)
Construction Details for Monitoring Wells Installed During the
Verification Study, RI Phase I, and UST Investigations

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Monitoring Well No.	Depth Completion Zone*	Land and Surface Elevation (ft msl)	Well Elevation (TOC) (ft msl)	Well Depth (ft BTOC)	Screened Interval (ft BTOC)	Screened Interval (ft BTOC)
South Field Area (RI Site 7/Site 1466)--continued						
WHF-1466-3	S	197.7	197.42	145	130 to 145	67 to 52
WHF-1466-3D	I	180.1	179.75	149	144 to 149	35 to 30
WHF-1466-4	S	190.6	190.37	151	132 to 147	54 to 39
WHF-1466-5R	S	175.6	175.18	132	117 to 132	58 to 43
WHF-1466-6	S	173.4	173.09	131	115 to 130	57 to 42
WHF-1466-7	S	172.5	172.26	131	116 to 131	56 to 41
WHF-1466-8	S	172.5	172.24	131	115 to 130	57 to 42
WHF-1466-9	S	173.4	173.20	116	100 to 115	72 to 57
WHF-1466-10	S	172.5	172.08	122	107 to 122	65 to 50
WHF-1466-11	S	176.3	175.87	104	89 to 104	86 to 71
WHF-1466-12	S	190.2	189.92	147	125 to 147	65 to 43
WHF-1466-13	S	177.5	177.31	130	115 to 130	62 to 47
WHF-1466-14	S	181.0	181.05	135	120 to 135	61 to 46
WHF-1466-15	S	178.1	177.81	135	119 to 134	57 to 43
WHF-1466-16	S	176.7	176.49	135	120 to 135	56 to 41
WHF-1466-17	S	178.2	177.91	134	119 to 134	58 to 43
WHF-1466-18	S	185.8	185.58	135	120 to 135	65 to 50
WHF-1466-19	S	189.2	188.81	145	130 to 145	70 to 55
WHF-1466-20	S	188.0	187.76	140	125 to 140	62 to 47

* Arbitrary depth zone designation for purposes of the RI.

Notes: RI = Remedial Investigation.

UST = underground storage tank.

ft msl = feet below mean sea level.

TOC = top of casing.

ft BTOC = feet below top of casing.

I = intermediate zone completion, top of well screen is generally more than 10 feet below water table.

NA = not available.

S = shallow or water table completion.

D = deep zone completion, top of well screen is generally more than 45 feet below water table.

for monitoring wells installed during previous investigations at NAS Whiting Field. Table 1-4 summarizes the analytical results for groundwater samples collected during the verification study.

The results of the study (Verification Study, Assessment of Potential Ground-Water Pollution at Naval Air Station Whiting Field, Florida, Geraghty & Miller, 1986) provided an assessment of the physical and chemical conditions currently existing at NAS Whiting Field. Groundwater contamination was confirmed at some sites and not at others. The conclusions of the study indicated that a characterization study was needed to further characterize the nature and extent of contamination at some sites.

The three-phase (IAS, confirmation study, and remedial measures) IR program was modified in 1987-88 to be congruent with CERCLA and SARA regulatory requirements. The updated nomenclature included:

- PA and SI,
- RI,
- FS, and
- planning and implementation of remedial design.

Under the updated rules, the IAS became equivalent to a PA and the first part of the confirmation study (the verification study) functioned as the SI. Subsequently, the characterization study was not performed and the existing investigations were used to support the updated program.

Consent Order. During 1985, one of the sites (Site 5, Battery Acid Seepage Pit) was investigated separately under a consent order with the FDER. Results indicated no contamination had resulted from past activities at the Battery Acid Shop, and it was recommended that the consent order be rescinded on April 15, 1987. Data from this investigation were compiled in a report entitled Detection and Monitoring Program, Battery Shop Site, Final Report, NAS Whiting Field, Florida(Geraghty & Miller, 1985b) and submitted to FDER.

Phase I Remedial Investigation, 1990-1992. In December 1990, ABB-ES, under contract to the Department of the Navy, SOUTHNAVFACENGCOM, initiated the RI Phase I at NAS Whiting Field. The objective of the RI Phase I was to characterize the nature and extent of contamination at sites identified during the IAS. The RI Phase I program addressed 14 of the 18 previously identified sites at the installation (Table 1-1). Three of the sites (Site 4, North AVGAS Tank Sludge Disposal Area; Site 7, South AVGAS Tank Sludge Disposal Area; and Site 8, AVGAS Fuel Spill Area) were not investigated because investigations were being conducted under the UST program. The fourth site not addressed was Site 5, Battery Acid Seepage Pit, which was being investigated under a consent order with FDER. Limited investigations were conducted at Sites 2 and 12 during the RI Phase I because no contaminants had been detected during the Verification Study (Geraghty & Miller, 1986).

No contamination attributable to Sites 2 and 12 was detected during the RI Phase I and no further action (NFA) was proposed for both sites. Site 2, the Northwest Open Disposal Area, only received construction and demolition debris and was indicated in the IAS to warrant no further consideration (Enviodyne Engineers, 1985). However, at a Project Managers' meeting in Atlanta, Georgia, on November

Table 1-4
Summary of Verification Study Results

Remedial Investigation and Feasibility Study, Phase IIA
Technical Memorandum No. 5, Groundwater Assessment
NAS Whiting Field, Milton, Florida

Site Number	Site Name	Materials Disposed	Groundwater Chemical	Frequency of Detection ¹	Maximum Conc. ($\mu\text{g/l}$)
1	Northwest Disposal Area	Refuse, waste paints, paint, paint thinner, solvents, waste oils, and hydraulic fluids.	Lead	1/1	1
2	Northwest Open Disposal Area	Construction and demolition debris.	Not tested		
3	Underground Waste Solvent Storage Area	Waste solvents, paint stripping residue, and 120-gallon spill.	1,1,1-TCA 1,1,2-TCA TCE Lead Arsenic	1/2 1/2 1/2 2/2 1/2	13 111 18 12 1
2/1467	North AVGAS Tank Sludge Disposal Area	AVGAS and tank bottom sludge with tetraethyl lead.	Benzene Toluene Lead	1/1 1/1 1/1	17 10 5
5	Battery Acid Seepage Pit	Waste electrolyte solution with heavy metals and waste battery acid.	Benzene Aldrin g-BHC (lindane) Heptachlor Antimony Cadmium Chromium Copper Lead Zinc	6/8 1/8 1/8 2/8 4/8 2/8 4/8 4/8 4/8 7/8	26 0.13 0.02 0.04 170 3 20 33 37 360
6	South Transformer Oil Disposal Area	PCB-contaminated dielectric fluid.	Not tested		
7/1466	South AVGAS Tank Sludge Disposal Area	AVGAS with tetraethyl lead.	Toluene Benzene EDB Lead Xylene	1/1 1/1 1/1 1/1 1/1	43,000 8,800 23.56 862 1,000
8/3054	AVGAS Fuel Spill Area	AVGAS with tetraethyl lead.	Benzene Toluene Lead	1/1 1/1 1/1	2 26 7
9	Waste Fuel Disposal Area	AVGAS with tetraethyl lead.	Lead	1/1	7
10	Southeast Open Disposal Area (A)	Waste solvents, paints, oil, hydraulic fluids, PCBs, pesticides, herbicides, and concrete debris.	Lead Silver	1/1 1/1	6 0.8

See notes at end of table.

Table 1-4 (Continued)
Summary of Verification Study Results

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Site Number	Site Name	Materials Disposed	Groundwater Chemical	Frequency of Detection ¹	Maximum Conc. ($\mu\text{g/l}$)
11	Southeast Open Disposal Area (B)	Waste solvents, paints, oils, hydraulic fluids, and PCBs.	BEHP Lead Zinc	1/1 1/1 1/1	23 1.5 50
12	Tetraethyl Lead Disposal Area	Tank bottom sludge with tetraethyl lead.	Lead	1/1	2
13	Sanitary Landfill	Refuse, waste solvents, paint, and asbestos.	Lead Nickel Zinc	1/1 1/1 1/1	6 60 240
14	Short-term Sanitary Landfill	Refuse, waste solvents, paint, oils, and hydraulic fluid.	None detected		
15	Southwest Landfill	Refuse, waste solvents, paint, oils, and hydraulic fluids.	BEHP Lead Zinc	1/1 1/1 1/1	36 3 30
16	Open Disposal and Burn Area	Refuse, waste paint, oils, solvents, thinners, and PCB-contaminated hydraulic fluids.	None detected		
17, 18	Crash Crew Training Areas	JP-5 fuel	None detected		

¹ Number of samples with detectable levels of contaminant per total number of samples analyzed.

Notes: Conc. = concentration.

$\mu\text{g/l}$ = micrograms per liter.

TCA = trichloroethane.

TCE = trichloroethene.

4/1467 = remedial investigation site designation/underground storage tank site designation.

AVGAS = aviation gasoline.

g-BHC = gamma benzene hexachloride.

PCBs = polychlorinated biphenyls.

EDB = ethylene dibromide.

BEHP = bis(2-ethylhexyl)phthalate.

13, 1992, USEPA and FDER requested that additional investigations be conducted at Sites 2 and 12 before NFA would be accepted. Subsequently, Sites 2 and 12 were included for further study within the IR program.

Five additional sites were identified during the RI Phase I activities and subsequently added to the RI Phase IIA program for investigation. The site numbers and names are as follows:

Site 29, Auto Hobby Shop;
Site 30, South Field Maintenance Hangar;
Site 31, Sludge Drying Beds and Disposal Areas;
Site 32, North Field Maintenance Hangar; and
Site 33, Midfield Maintenance Hangar.

Site numbers 19 through 28 are not used at NAS Whiting Field because they identify sites located at Outlying Landing Field (OLF) Barin in Foley, Alabama. A separate remedial investigation is being conducted at the OLF Barin sites.

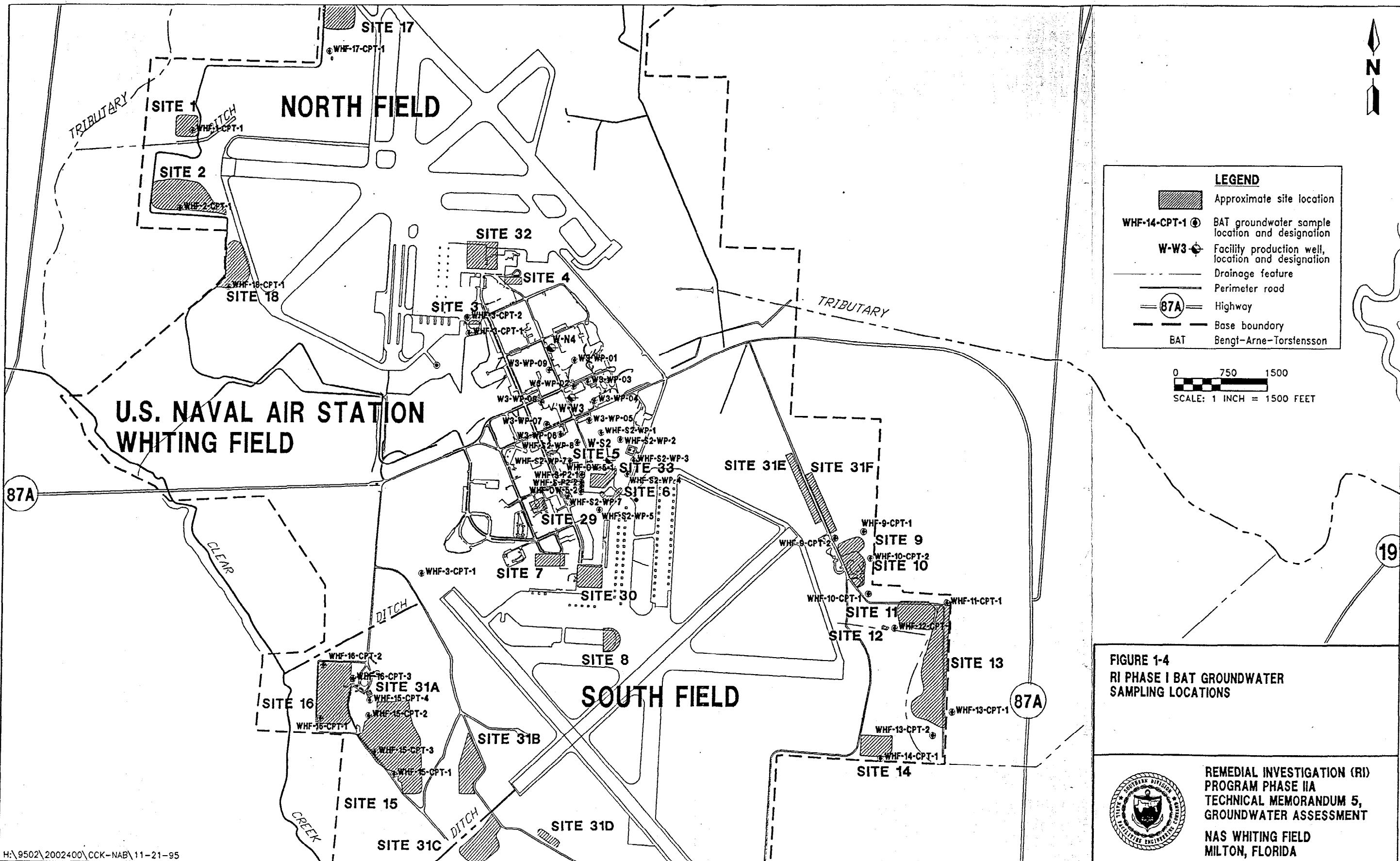
Site 5 was not included in RI Phase I. However, the presence of benzene in samples collected from existing monitoring wells surrounding the seepage pit at Site 5 warranted further consideration within the investigation of Site 33. Table 1-5 summarizes the historic information collected at the identified sites at NAS Whiting Field.

As part of the RI Phase I investigation, piezocene penetrometer (PCPT) subsurface explorations were completed in conjunction with *in situ* groundwater samples collected using the Bengt-Arne-Torstensson (BAT) sampling technique. BAT samples are collected by lowering a hermetically sealed vial to the selected depth within the borehole. The assembly mechanism contains a double-ended hypodermic needle, which pierces a sealant on the well tip and on the vial. Formation fluids were then drawn into the vial. Following sample collection, the needles were withdrawn and the sealed vial was returned to the surface. Additional details of the sampling method are provided in the RI/FS Phase I Technical Memorandum No. 5, Groundwater Quality Assessment (ABB-ES, 1992).

A total of 68 groundwater samples were collected with the BAT sampler from 13 sites and from the areas surrounding production wells W-S2 and W-W3. Six of the 68 samples collected were duplicate samples. The sample locations are shown on Figure 1-4.

The groundwater samples were analyzed for target compound list (TCL) VOCs and target analyte list (TAL) inorganics and results were reported as a Naval Energy and Environmental Support Activity (NEESA) Level E deliverable (USEPA Level V DQO; USEPA, 1987). The groundwater results from the BAT sampler are not appropriate for use in risk assessment or feasibility study, but were used as a screening tool to identify locations for permanent monitoring wells.

Two VOCs (carbon disulfide and acetone) were detected in both groundwater and quality assurance and quality control (QA/QC) samples. The VOCs were interpreted in the final report to be artifacts of the sampling process and were not attributed to the site groundwater conditions.



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**REMEDIAL INVESTIGATION (RI)
PROGRAM PHASE IIA
TECHNICAL MEMORANDUM 5,
GROUNDWATER ASSESSMENT**

The logo is circular with a rope-like border. Inside, the words "SOUTHERN DIVISION" are at the top and "CIVIL FACILITIES ENGINEERING COMMAND" are at the bottom, separated by a horizontal line. In the center is a shield containing a stylized building or bridge structure.

**FIGURE 1-4
RI PHASE I BAT GROUNDWATER
SAMPLING LOCATIONS**

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Table 1-5
Summary of Potential Disposal Sites

Remedial Investigation and Feasibility Study, Phase IIA
Technical Memorandum No. 5, Groundwater Assessment
NAS Whiting Field, Milton, Florida

Site No.	Site Name and Type	Location	Period of Operation	Types of Material Disposed	Comments
1	Northwest Disposal Area (landfill)	North Field, west side	1943-1965	Refuse, waste paints, thinners, solvents, waste oils, and hydraulic fluids.	Secondary disposal area during this period; site covers 5 acres.
2	Northwest Open Disposal Area (landfill)	North Field, west side	1976-1984	Construction and demolition debris, tires, and furniture.	Former borrow pit location, commonly referred to as the "Wood Dump."
3	Underground Waste Solvent Storage Area (tank)	North Field, south of Building 2941.	1980-1984	Waste solvents, paint stripping residue, and 120-gallon spill.	Wastes generated by paint stripping operations.
4/1467	North AVGAS Tank Sludge Disposal Area	North Field, north of Tow Lane.	1943-1968	Tank bottom sludge containing tetraethyl lead.	Sludge disposal in shallow holes near tanks.
5	Battery Acid Seepage Pit (contaminated soil)	South Field, southwest of Building 1454.	1964-1984	Waste electrolyte solution containing heavy metals and waste battery acid.	Pits located 110 feet from potable supply well (W-S2).
6	South Transformer Oil Disposal Area (contaminated soil)	South Field, southeast of Building 1454.	1940s-1960s	PCB-contaminated dielectric fluid.	Disposal in "0-2" drainage ditch.
7/1466	South AVGAS Tank Sludge Disposal Area (landfill and tanks)	South Field, west of Building 1406.	1943-1968	Tank bottom sludge containing tetraethyl lead.	Sludge disposed of in shallow holes near tanks.
8/3054	AVGAS Fuel Spill Area (contaminated soil)	South Field, south of Building 1406.	Summer 1972	AVGAS containing tetraethyl lead.	Fuel spill of about 25,000 gallons on an area of about 2 acres.
9	Waste Fuel Disposal Pit (landfill)	South Field, east side	1950s-1960s	Waste AVGAS containing tetraethyl lead.	Fuel disposed of in former borrow pit.
10	Southeast Open Disposal Area (A) (landfill)	South Field, southeast area	1965-1973	Construction and demolition debris, waste solvents, paint, oils, hydraulic fluid, PCBs, pesticides, and herbicides.	Secondary disposal area during this period; site covers about 4 acres.
11	Southeast Open Disposal Area (B) (landfill)	South Field, southeast area	1943-1970	Construction and demolition debris, waste solvents, paint, oils, hydraulic fluid, and PCBs.	Secondary disposal area during this period; site covers about 3 acres.

See notes at end of table.

Table 1-5 (Continued)
Summary of Potential Disposal Sites

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Site No.	Site Name and Type	Location	Period of Operation	Types of Material Disposed	Comments
12	Tetraethyl Lead Disposal Area (waste pile)	South Field, southeast area	May 1, 1968	Tank bottom sludge and fuel filters contaminated with tetraethyl lead.	Disposal area posted with warning; site consists of two earth covered mounds; 25 foot by 25 foot area.
13	Sanitary Landfill (landfill)	South Field, southeast area	1979-1984	Refuse, waste solvents, paint, hydraulic fluids, and asbestos.	Primary sanitary landfill, potentially received hazardous wastes the first year of operation.
14	Short-Term Sanitary Landfill (landfill)	South Field, southeast area	1978-1979	Refuse, waste solvents, oils, paint, and hydraulic fluids.	Primary sanitary landfill for brief period; relocated due to drainage problems.
15	Southwest Landfill (landfill)	South Field, southwest area	1965-1979	Refuse, waste paints, oils, solvents, thinners, asbestos, and hydraulic fluid.	Primary landfill for this time period; covers about 15 acres.
16	Open Disposal and Burning Area (landfill)	South Field, southwest area	1943-1965	Refuse, waste paints, oils, solvents, thinners, PCBs, and hydraulic fluid.	Primary disposal area for this time period; covers about 10 acres.
17	Crash Crew Training Area (contaminated soil)	North Field, west side	1951-present	JP-5.	Waste fuels and some solvents ignited, then extinguished.
18	Crash Crew Training Area (contaminated soil)	North Field, west side	1951-1990	JP-5.	Waste fuels and some solvents ignited, then extinguished.
29	Auto Hobby Shop	Area around Building 1404	1940s-1990	Paint, oils, and solvents	Abandoned underground waste oil tanks.
30	South Field Maintenance Hangar	Area around Building 1406	1940s-present	Fuels, solvents, and oils	Abandoned underground waste oil tanks.
31	Sludge Drying Beds and Disposal Areas	Wastewater Treatment Plant and along perimeter roads.	1940s-present	Wastewater Treatment Plant sludge.	Sludge from beds spread on ground along perimeter road.
32	North Field Maintenance Hangar	Area around Building 1424	1940s-present	Fuels, solvents, and oils	Abandoned underground waste oil tanks.
33	Midfield Maintenance Hangar	Area around Building 1454	1940s-present	Fuels, solvents, and oils	Abandoned underground waste oil tanks.

Notes: 4/1467 = remedial investigation site designation/underground storage tank site designation.
 AVGAS = aviation gasoline.
 PCB = polychlorinated biphenyls.

Background concentrations of inorganic analytes specific to this phase of the investigation were determined to elevate concentrations of inorganic analytes detected in groundwater samples collected from the BAT sampler. The target analytes detected and range of inorganic background concentrations are presented in Table 1-6.

BAT Sampling Results. Thirty-six *in situ* groundwater BAT samples were collected from locations surrounding the North Field Hangar Area and in a radial pattern surrounding facility production wells W-S2 and W-W3 (Figure 1-4). Nineteen of the BAT samples were collected from the water table zone of the sand-and-gravel aquifer at depths ranging from 114 to 133 feet bbls. Seventeen of the samples were collected from depths ranging from 180 to 183 feet bbls. The deeper samples were collected from depths that represent the zone of the local facility production wells.

North Field Hangar Area. BAT samples were collected from two locations at the North Field Hangar Area. The following table presents a summary of the frequency of detection and concentrations of VOCs detected in eight BAT groundwater samples collected from the water table zone of the sand-and-gravel aquifer.

Compound	Frequency of Detection ¹	Range of Detected Concentrations ($\mu\text{g/l}$)
Trichloroethene	2/8	11 and 54
1,2-Dichloroethane	1/8	34
cis/trans-1,2-Dichloroethylene	2/8	130 and 250
Benzene	2/8	1,800 and 3,000
Ethylbenzene	2/8	58 and 97
Xylene	2/8	27 and 310

¹ Number of detections/number of samples.

Note: $\mu\text{g/l}$ = micrograms per liter.

No VOCs were detected in the groundwater samples collected with the BAT sampler from the deep 180 to 183 feet bbls zone of the sand-and-gravel aquifer.

Inorganic analytes were detected at concentrations similar to the range of background values presented in Table 1-6.

Production Well W-S2. Groundwater samples were collected from eight locations in an approximate 400-foot radius from production well W-S2 (Figure 1-4). The following VOCs were detected in groundwater samples collected from the water table zone of the sand-and-gravel aquifer:

Compound	Frequency of Detection ¹	Range of Detected Concentrations ($\mu\text{g/l}$)
Trichloroethene	2/8	400 and 8.7
Toluene	1/3	7.2
Xylene	3/8	12, 8.9, and 10

¹ Number of detections/number of samples.

Note: $\mu\text{g/l}$ = micrograms per liter.

Table 1-6
Range of Interpreted Background Inorganic Concentrations
for Groundwater Samples Collected Using the
Bengt-Arne-Torstensson (BAT) Sampler

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Analyte	Background Concentration Range (mg/l)
Aluminum	<200 to 1,070
Antimony	<50
Barium	<10 to 109
Arsenic	<10
Beryllium	<5
Cadmium	<5
Calcium	36 to 7,110
Copper	<25 to 152
Chromium	<10 to 42.2
Cobalt	<10
Iron	<50 to 5,900
Lead	<3 to 8.1
Magnesium	<500 to 8,540
Manganese	<10 to 125
Mercury	<0.2 to 0.30
Nickel	<40 to 107
Potassium	<1,000 to 1,520
Selenium	<5
Silver	<10
Sodium	1,260 to 6,180
Thallium	<10
Vanadium	<10 to 20.7
Zinc	42.4 to 189

Note: mg/l = milligram per liter.

Benzene was detected in a single deep groundwater sample at 6.3 $\mu\text{g/l}$. None of the other deep groundwater samples contained VOCs at concentrations exceeding instrument detection limits (IDL). Inorganic analytes were detected at concentrations similar to the range of background values presented in Table 1-6.

Production Well W-W3. BAT samples were collected from nine locations in an approximate 400-foot radius around production well W-W3 (Figure 1-4). A single shallow groundwater sample contained trichloroethene at a concentration of 5.5 $\mu\text{g/l}$. None of the other groundwater samples collected from the water table zone of the sand-and-gravel aquifer contained concentrations of VOCs above the IDL.

Only one of eight deep groundwater samples (Sample WHF-W3-WP-06-02) contained VOCs at concentrations exceeding IDLs. The compounds detected and the concentrations reported are benzene, 1.4 $\mu\text{g/l}$; toluene, 5.8 $\mu\text{g/l}$; and 1,1,1-trichloroethane, 45 $\mu\text{g/l}$.

Inorganic analytes were detected at concentrations similar to the range of background values presented in Table 1-6.

Northwest Disposal (Sites 1 and 2) and Crash Crew Training (Sites 17 and 18) Area. A single shallow (water table zone) groundwater sample was collected at each of Sites 1, 2, and 17. At Site 18, one shallow and one deep groundwater sample was collected from a single location. Figure 1-4 shows the sampling locations at each of the sites.

No VOCs were detected at concentrations above the IDL in any of the BAT groundwater samples collected from the Northwest Disposal Areas (Sites 1 and 2) and Crash Crew Training (Sites 17 and 18) areas.

Chromium was detected at a concentration that exceeded the Federal and Florida maximum contaminant levels (MCLs) of 100 $\mu\text{g/l}$ and 50 $\mu\text{g/l}$, respectively. Lead was detected at a concentration that exceeded the promulgated Federal standard of 15 $\mu\text{g/l}$. The other inorganic analytes detected were at concentrations similar to the background values presented in Table 1-6.

Southeast Disposal Area (Sites 9, 10, 11, 12, 13, 14). Both shallow (water table zone) and deep zone groundwater samples were collected with the BAT sampler at single locations at Sites 9, 11, 12, 13, and 14 (Figure 1-4). Shallow and deep groundwater BAT samples were collected from two locations at Site 10 (Figure 1-4). The ranges of sample depths for the shallow samples varied from 82 to 107 feet bbls; and groundwater samples from the deep zone of the sand-and-gravel aquifer ranged from 132 to 162 feet bbls.

None of the groundwater samples collected contained VOCs at concentrations exceeding the IDL. Concentrations of chromium ranged from 410 $\mu\text{g/l}$ to 88.5 $\mu\text{g/l}$; however, only one of the samples (WHD-09-WP-01 and its duplicate sample) contained concentrations exceeding the background values presented in Table 1-6. Concentrations of zinc were detected in each sample at concentrations ranging from 52.4 $\mu\text{g/l}$ to 281 $\mu\text{g/l}$. However, concentrations of zinc were less than the background values presented in Table 1-6.

Southwest Disposal Area (Sites 15 and 16). BAT samples were collected at four locations at Site 15 and two locations at Site 16 (Figure 1-4). Two shallow and two deep groundwater samples were collected at Site 16. However, at Site 15, because of debris encountered in the borehole and concerns of transporting contamination deeper within the borehole, only shallow groundwater samples were collected.

Three VOCs were detected in the BAT groundwater samples collected at Site 15: benzene (1.3 and 2.4 $\mu\text{g/l}$), toluene (11 $\mu\text{g/l}$), and xylene (8.0 $\mu\text{g/l}$).

No VOCs were detected in BAT samples collected from the water table zone at Site 16. VOCs were detected in BAT samples collected from the deep zone (55 to 72 feet below the water table) and included benzene (410 $\mu\text{g/l}$), toluene (5.5 $\mu\text{g/l}$), xylene (5.4 $\mu\text{g/l}$), and 1,2-dichloroethane (13 $\mu\text{g/l}$).

With the exception of the inorganic analyte aluminum, which was detected in one shallow BAT groundwater sample at Site 15, inorganic analytes were detected at concentrations similar to the background values presented in Table 1-6.

Based on the results of the BAT groundwater sampling event, it was determined that additional groundwater investigative activities were warranted during RI Phase IIA. The additional investigation would focus on source identification, defining the lateral and vertical groundwater flow direction, defining ground hydraulic characteristics, and defining nature and extent of contaminants detected.

UST Investigations, 1991-1994. RI Sites 4, 7, and 8 (also referred to as UST Sites 1467, 1466, and 3054, respectively) have been investigated under the Navy's UST program and, therefore, have not been incorporated into the Navy's IR program. During a project managers meeting at Whiting Field on July 7, 1992, an agreement was reached among the Navy, USEPA, and FDEP to sample monitoring wells at Sites 4, 7, and 8 and analyze for TCL and TAL analytes. Based on the results of these analyses, a decision would be made regarding whether Sites 4 and 7 should remain in the Navy's UST program or be transferred into the Navy's IR program. The UST field work was completed between August 16 and 30, 1993, and included the collection of groundwater samples from 11 monitoring wells at Site 4 (UST Site 1467) and 19 monitoring wells at Site 7 (UST Site 1466).

The results of the UST program investigation were reported in the jurisdiction assessment report (ABB-ES, 1994a). The report concluded that plumes of benzene, toluene, ethylbenzene, and xylene (BTEX) and trichloroethene at Sites 4 and 7 are co-mingled and that petroleum contaminants (BTEX) could not be remediated without design considerations for trichloroethene. Based on the findings and conclusions presented in the jurisdictional assessment report (ABB-ES, 1994a), it was recommended that additional contamination assessment at NAS Whiting Field sites 1466 and 1467 (Installation Restoration sites 4 and 7) should be conducted as part of the ongoing IR program.

Site 8 (UST Site 3054) was investigated under a separate contamination assessment conducted on July 17, 1993. The results of the investigation were reported in the Contamination Assessment Report (CAR) addendum for Site 3054 (IR Site 8), NAS Whiting Field, Milton, Florida (ABB-ES, 1993). Based on the data presented in the CAR addendum, NFA was recommended for the site. In correspondence dated January 20, 1994, the FDEP formally accepted the NFA recommendations presented

in the CAR addendum for Site 3054. The NFA recommendation was incorporated into a site rehabilitation completion order that has been signed by the Director of the FDEM Division of Waste Management.

1.4 OBJECTIVES OF THE RI PHASE IIA GROUNDWATER QUALITY ASSESSMENT. The objective of the RI Phase IIA groundwater assessment was to characterize the nature and extent of groundwater contamination resulting from past discharges from the various sites at NAS Whiting Field.

The assessment included the following field exploration techniques:

- additional *in situ* groundwater sampling using the BAT method was conducted to assess the migration of contaminants from the industrial area toward Clear Creek and Sites 15 and 16;
- three monitoring wells were installed in the northern part of NAS Whiting Field to provide upgradient background groundwater quality data;
- seventy-six monitoring wells were installed to define aquifer characteristics and assess groundwater quality; and
- groundwater samples were collected from all newly installed and existing monitoring wells.

The purpose of Technical Memorandum No. 5, Groundwater Assessment, is to describe methods used to collect groundwater samples and describe the analytical results. No conclusions or recommendations in regard to horizontal or vertical extent of contamination, if present, will be made.

2.0 FIELD INVESTIGATION PROGRAM SUMMARY

The Phase IIA groundwater assessment field program included the following activities:

- conduct *in situ* groundwater sampling using the BAT method,
- install monitoring wells,
- collect groundwater samples from newly installed and existing monitoring wells, and
- analyze groundwater samples for Contract Laboratory Program (CLP) TCL and TAL analytes

The methods used to conduct this part of the RI field program are summarized below.

2.1 BENGT-ARNE-TORSTENSSON (BAT) SCREENING TECHNIQUE. An *in situ* groundwater sampling program using the BAT method was conducted from October 12 to November 2, 1992, during the RI Phase IIA at NAS Whiting Field. The BAT groundwater sampling program was conducted to assess whether contamination in the industrial area is migrating toward Clear Creek and Sites 15 and 16.

Fourteen groundwater samples were collected from seven locations (Figure 2-1) using the BAT sampler. One sample from each exploration location was collected from the water table zone (ranging from 107 to 134 feet bls) of the sand-and-gravel aquifer, and a second sample was collected from the deeper zone (ranging from 170 to 198 feet bls) used by local production wells. Table 2-1 presents the sampling date, sample designation, and sample depth for RI Phase IIA BAT groundwater samples.

The collection depth of the groundwater sample was determined in the field based on lithology and moisture content as indicated by PCPT soundings (see Appendix B for a description of the PCPT soundings). Once the sample depth was determined, a drill rig was used to advance a borehole using mud rotary drilling techniques to approximately 2 to 3 feet above the desired sample collection depth. The BAT sampler was lowered to the bottom of the borehole and manually driven 2 to 3 feet beyond the bottom of the borehole to collect a groundwater sample from the zone of interest. Once the sampling depth was reached, the pushrod was retracted to open the sampling device to the formation fluids. The following provides a brief description of the BAT sampling device.

The BAT sampling device contains a hermetically sealed evacuated vial, which is lowered through the pushrod to the sample collection depth using a weighted sampling assembly. The assembly mechanism contains a double-ended hypodermic needle that first pierces the seal at the bottom of the pushrod, followed immediately thereafter by the seal on the vial. Formation fluids flow into the vial until the pressure in the vial is equivalent to the fluid pressure of the formation. When the sampling assembly is pulled from the tip of the pushrod, the needle is pulled out of both seals. Because the sample is obtained using a closed

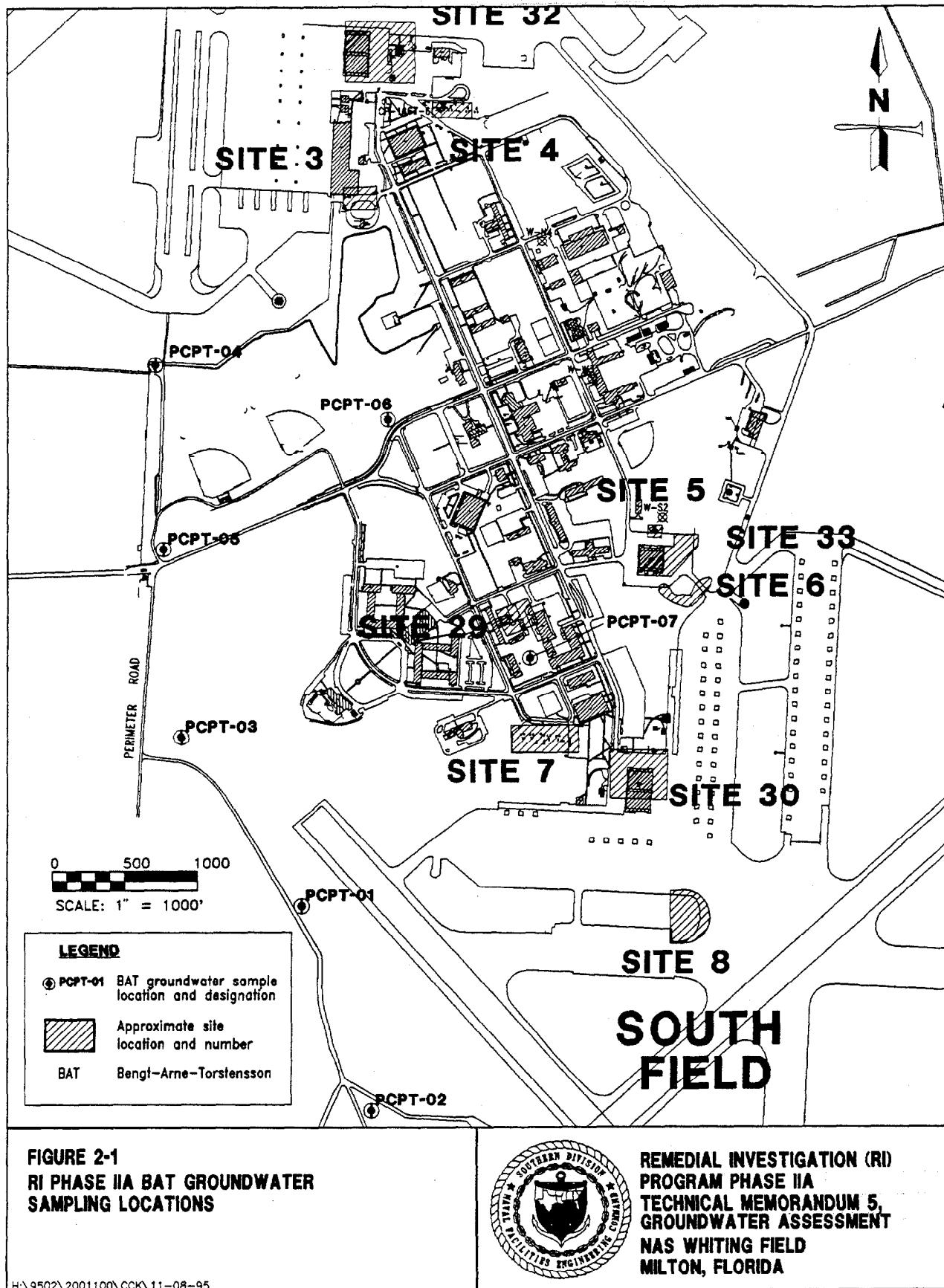


FIGURE 2-1
RI PHASE IIA BAT GROUNDWATER SAMPLING LOCATIONS

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**REMEDIAL INVESTIGATION (RI)
PROGRAM PHASE IIA
TECHNICAL MEMORANDUM 5,
GROUNDWATER ASSESSMENT
NAS WHITING FIELD
MILTON, FLORIDA**

Table 2-1
Summary of Bengt-Arne-Torstensson (BAT)
Groundwater Sampling Summary

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Date Sampled	Groundwater Sample Designation	Sample Depth (feet bsl)
10-13-92	WHF-2A-WP-01-01	107
10-17-92	WHF-2A-WP-01-02	170
10-13-92	WHF-2A-WP-02-01	113
10-19-92	WHF-2A-WP-02-02	178
10-20-92	WHF-2A-WP-03-01	129
10-20-92	WHF-2A-WP-03-01A	129
10-26-92	WHF-2A-WP-03-02	183
10-27-92	WHF-2A-WP-04-01	128
10-28-92	WHF-2A-WP-04-02	183
10-30-92	WHF-2A-WP-05-01	128
10-30-92	WHF-2A-WP-05-02	198
10-31-92	WHF-2A-WP-06-01	134
10-31-92	WHF-2A-WP-06-02	178
11-1-92	WHF-2A-WP-07-01	133
11-1-92	WHF-2A-WP-07-02	188

Notes: An "A" in the sample identifier indicates a duplicate sample.
 bsl = below land surface.

system, cross contamination, human contact, and volatilization resulting from exposure to ambient pressures are minimized. Additional details for the BAT sampling procedure are provided in Appendix A.

The groundwater samples were shipped by overnight express under chain-of-custody protocol to CH₂M HILL Laboratory, Inc., Montgomery, Alabama, for analyses of TCL VOCs. Samples were collected, analyzed, and results reported as a NEESA Level E (USEPA Level V, USEPA 1987) data deliverable.

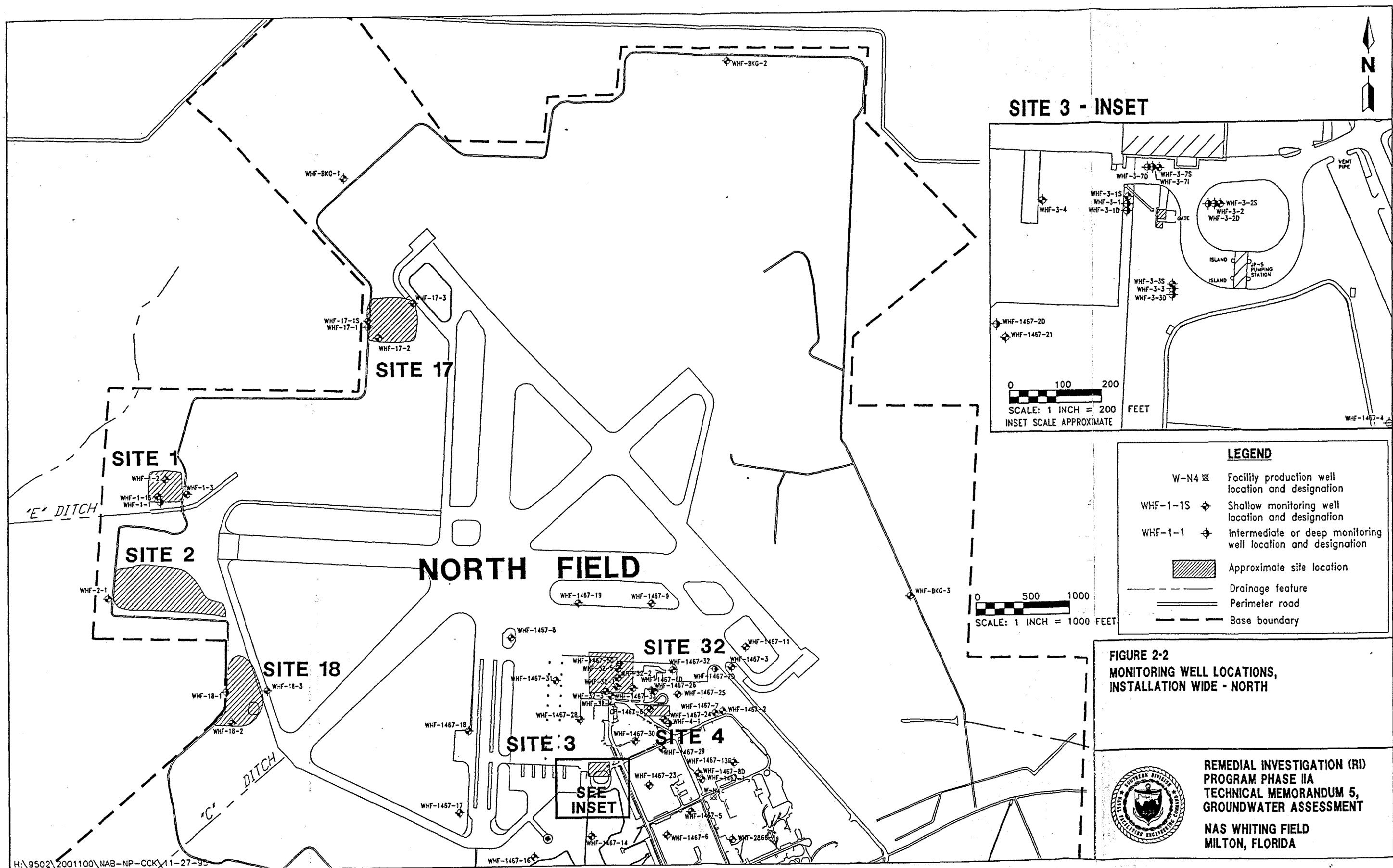
2.2 MONITORING WELL INSTALLATION. The RI Phase IIA monitoring well installation part of the groundwater investigation was conducted between January and July 1993. A total of 76 monitoring wells were installed at 18 sites throughout the installation (Figures 2-2 and 2-3).

Monitoring wells were installed using both the hollow-stem auger (HSA) and mud rotary techniques. The wells were installed by Groundwater Protection, Inc. Lithologic samples were collected at 5-foot intervals during the drilling of soil borings for the well installation using American Society for Testing and Materials (ASTM) Method D1586 for 2-foot split-spoon samples. When installing a cluster of wells (two or more wells in close proximity), the deep well was typically completed first and, during drilling of the soil borings, soil samples were collected at 5-foot intervals. Soil samples were not collected at 5-foot intervals from the soil borings drilled for the shallow and intermediate well in a cluster. However, at some of the shallow and intermediate well locations, soil samples were collected from the screen interval and at depths suspected to contain a clay layer to ensure that the wells were screened in a productive zone of the aquifer.

Lithologic samples were screened with an organic vapor analyzer (OVA), described, and representative parts of a lithologic sample were archived in a plastic soil sample box. The samples were described using the Unified Soil Classification System (USCS) and the description recorded in a bound log book. Soil samples from the monitoring well screen interval were collected to characterize the subsurface lithology at a given location. Monitoring well construction details for RI Phase I and Phase IIA monitoring wells are summarized in Table 2-2.

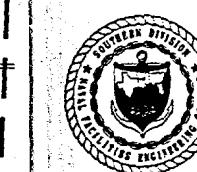
Shallow Monitoring Well Installation. All shallow monitoring wells (monitoring wells that are screened across the water table) were advanced using 8½-inch outside diameter (OD) HSAs.

Shallow monitoring wells were constructed in each borehole through the hollow portion of the augers and consisted of a threaded 2-inch inside diameter (ID) schedule 40 polyvinyl chloride (PVC) riser pipe attached to a 10- to 15-foot section of 0.010-inch slot PVC well screen. The well screen was placed across the water table with sufficient height above the water table to allow for seasonal groundwater fluctuations. A sand pack of 20/30 grade silica sand was placed opposite the well screen in the borehole annulus and brought up to a level approximately 2 feet above the top of the well screen. The augers were removed slowly during the placement of the 20/30 grade sand pack around the annulus of the well screen. This procedure minimized formation caving. A minimum 1-foot layer of bentonite, in pellet form, was then placed in the annular space above the sand pack and the bentonite was hydrated using potable water. After allowing sufficient time for the bentonite to hydrate, a bentonite and cement grout was



REMEDIAL INVESTIGATION (RI)
PROGRAM PHASE IIA
TECHNICAL MEMORANDUM 5,
GROUNDWATER ASSESSMENT

NAS WHITING FIELD
MILTON, FLORIDA



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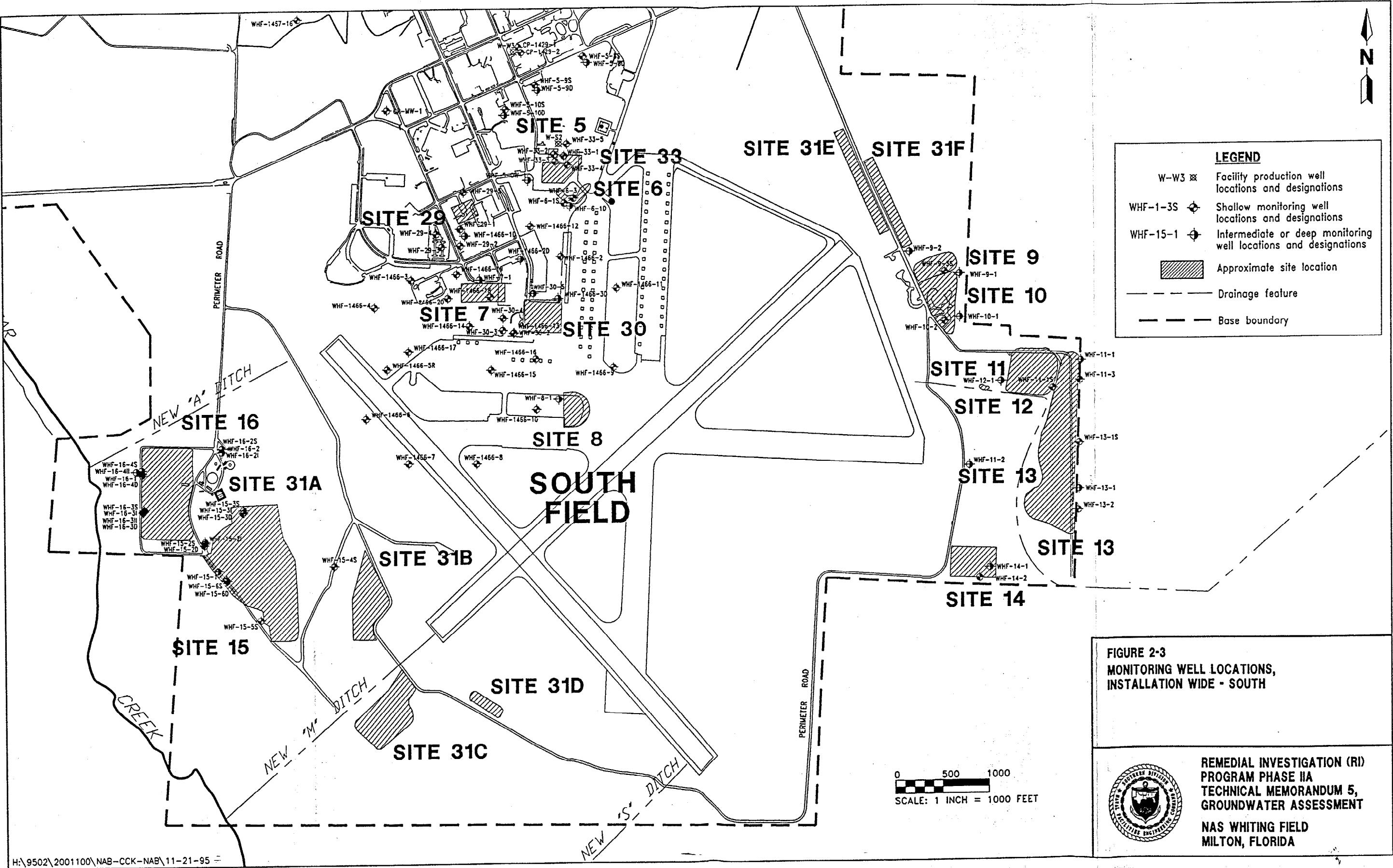


Table 2-2
Summary of Remedial Investigation and Feasibility Study
Monitoring Well Construction Details

**Remedial Investigation and Feasibility Study, Phase II A
Technical Memorandum No. 5, Groundwater Assessment
NAS Whiting Field, Milton, Florida**

Table 2-2 (Continued)
Summary of Remedial Investigation and Feasibility Study
Monitoring Well Construction Details

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Monitoring Well Designation	RI Phase of Well Completion	Well Completion Zone	Land Surface Elevation (feet msl)	TOC Elevation (feet msl)	Surface Casing Length (feet bsl)	Total Well Depth (feet BTOC)	Approximate Screen Interval (feet BTOC)	Approximate Screen Interval (feet msl)
Site 15, Southeast Landfill (Continued)								
WHF-15-2S	IIA	S	57.18	59.58	NA	32.90	17 to 32	42 to 27
WHF-15-2D	IIA	D	57.05	59.39	NA	112.44	107 to 112	-47 to -52
WHF-15-3D	IIA	D	67.84	69.44	NA	119.48	109 to 119	-40 to -50
WHF-15-3I	IIA	I	67.26	69.69	NA	87.83	77 to 87	-7 to -17
WHF-15-3S	IIA	S	67.35	69.29	NA	37.94	22 to 37	47 to 32
WHF-15-4S	IIA	S	140.62	143.29	NA	109.15	94 to 109	48 to 33
WHF-15-5S	IIA	S	101.73	104.14	NA	68.18	58 to 68	45 to 35
WHF-15-6D	IIA	D	72.56	75.08	NA	123.36	113 to 123	-37 to -47
WHF-15-6S	IIA	S	71.87	74.29	NA	43.73	28 to 43	46 to 31
Site 16, Open Disposal and Burning Area								
WHF-16-1	VS	I	47.47	50.04	NA	43.00	33 to 43	17 to 7
WHF-16-2	I	I	79.38	82.19	NA	74.20	69 to 74	12 to 7
WHF-16-2I	IIA	I	78.02	80.60	NA	130.14	120 to 130	-38 to -48
WHF-16-2S	IIA	S	80.77	83.66	NA	49.80	34 to 49	48 to 33
WHF-16-3D	IIA	D	48.64	51.40	NA	118.08	108 to 118	-56 to -66
WHF-16-3I	IIA	I	48.73	51.31	NA	52.87	47 to 52	3 to -1
WHF-16-3II	IIA	I	48.60	51.22	NA	78.91	73 to 78	-26 to -31
WHF-16-3S	IIA	S	48.88	51.69	NA	23.25	8 to 23	43 to 27
WHF-16-4D	IIA	D	49.88	52.87	0 to 65	122.54	112 to 122	-56 to -79
WHF-16-4II	IIA	I	50.62	53.01	NA	64.80	54 to 64	0 to -9
WHF-16-4S	IIA	S	52.19	54.79	NA	22.38	7 to 22	47 to 32
WHF-16-5	IIA	S	(¹)	37.54	NA	13.50	3 to 13	34 to 24

See notes at end of table.

Table 2-2 (Continued)
Summary of Remedial Investigation and Feasibility Study
Monitoring Well Construction Details

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Monitoring Well Designation	RI Phase of Well Completion	Well Completion Zone	Land Surface Elevation (feet msl)	TOC Elevation (feet msl)	Surface Casing Length (feet bsl)	Total Well Depth (feet BTOC)	Approximate Screen Interval (feet BTOC)	Approximate Screen Interval (feet msl)
Southeast Disposal Area								
Site 9, Waste Fuel Disposal Pit								
WHF-9-1	VS	I	144.66	146.55	NA	118.40	108 to 118	3 to 29
WHF-9-2	I	I	158.11	161.07	NA	124.35	114 to 124	44 to 36
WHF-9-3S	IIA	S	147.92	150.85	0 to 77	108.24	93 to 108	57 to 42
Site 10, Southeast Open Disposal Area (A)								
WHF-10-1	VS	I	144.19	146.73	NA	118.20	108 to 118	39 to 29
WHF-10-2	IIA	S	147.78	150.75	NA	113.14	98 to 113	49 to 34
Site 11, Southeast Open Disposal Area (B)								
WHF-11-1	VS	I	122.48	124.86	NA	128.40	118 to 128	7 to -2
WHF-11-1S	IIA	S	114.91	116.65	NA	54.40	39 to 54	78 to 63
WHF-11-2	I	I	145.19	148.12	NA	125.84	120 to 125	27 to 22
WHF-11-3	IIA	S	114.29	117.19	0 to 46	73.16	58 to 73	59 to 44
Site 12, Tetraethyl Lead Disposal Area								
WHF-12-1	VS	I	134.20	136.40	NA	113.40	103 to 113	33 to 23
Site 13, Sanitary Landfill								
WHF-13-1	VS	I	100.40	102.66	NA	122.90	112 to 122	-9 to -19
WHF-13-1S	IIA	S	104.61	108.97	NA	61.30	46 to 61	61 to 46
WHF-13-2S	IIA	S	99.94	102.86	0 to 42	72.41	57 to 72	45 to 30
Site 14, Short-Term Sanitary Landfill								
WHF-14-1	VS	I	137.83	139.69	NA	153.20	143 to 153	-3 to -15
WHF-14-2	IIA	S	142.86	145.80	0 to 94	118.30	103 to 118	42 to 27

See notes at end of table.

Table 2-2 (Continued)
Summary of Remedial Investigation and Feasibility Study
Monitoring Well Construction Details

**Remedial Investigation and Feasibility Study, Phase II A
Technical Memorandum No. 5, Groundwater Assessment
NAS Whiting Field, Milton, Florida**

Monitoring Well Designation	RI Phase of Well Completion	Well Completion Zone	Land Surface Elevation (feet msl)	TOC Elevation (feet msl)	Surface Casing Length (feet bsl)	Total Well Depth (feet BTOC)	Approximate Screen Interval (feet BTOC)	Approximate Screen Interval (feet msl)
Industrial Area								
<u>Site 5, Battery Acid Seepage Pit</u>								
WHF-5-OW-1	I	D	182.48	185.80	0 to 125	177.81	172 to 177	14 to 9
WHF-5-OW-2	I	D	182.78	186.02	NA	116.40	111 to 116	61 to 55
WHF-5-3	VS	I	(¹)	(¹)	NA	150.81	NA	47 to 37
WHF-5-8D	IIA	D	174.81	177.86	NA	174.18	164 to 174	13 to 3
WHF-5-8S	IIA	S	174.75	177.44	NA	128.15	113 to 128	64 to -11
WHF-5-9D	IIA	D	176.34	175.97	0 to 107	180.12	170 to 180	5 to -5
WHF-5-9S	IIA	S	175.85	175.55	0 to 108	128.74	118 to 128	57 to 47
WHF-5-10D	IIA	D	181.56	184.32	0 to 117	183.32	173 to 183	11 to 1
WHF-5-10S	IIA	S	181.06	184.11	0 to 119	144.71	134 to 144	50 to 40
WHF-5-PZ	I	NA	(¹)	186.00	0 to 125	136.78	135 to 136	51 to 50
WHF-5-PZ2	I	NA	(¹)	185.90	0 to 125	151.94	150 to 151	35 to 34
<u>Site 6, South Transformer Oil Disposal Area</u>								
WHF-6-1D	IIA	D	177.77	177.55	0 to 112	180.47	175 to 180	2 to -3
WHF-6-1S	IIA	S	177.79	177.63	0 to 112	134.33	124 to 134	53 to 43
WHF-6-3	IIA	S	176.11	175.72	NA	123.45	108 to 123	67 to 52
<u>Site 33, Midfield Maintenance Hangar Area</u>								
WHF-33-1	IIA	S	180.78	180.58	NA	127.44	112 to 127	68 to 53
WHF-33-2	IIA	S	181.69	181.48	NA	128.40	113 to 128	68 to 53
WHF-33-3	IIA	S	182.01	181.79	NA	128.44	113 to 128	68 to 53
WHF-33-4	IIA	S	180.56	180.36	NA	127.94	112 to 127	68 to 53
WHF-33-5	IIA	S	178.51	178.39	NA	125.90	110 to 125	68 to 53

Table 2-2 (Continued)
Summary of Remedial Investigation and Feasibility Study
Monitoring Well Construction Details

**Remedial Investigation and Feasibility Study, Phase IIA
Technical Memorandum No. 5, Groundwater Assessment
NAS Whiting Field, Milton, Florida**

Site Monitoring Well Data, Miller, Nevada								
Monitoring Well Designation	RI Phase of Well Completion	Well Completion Zone	Land Surface Elevation (feet msl)	TOC Elevation (feet msl)	Surface Casing Length (feet bsl)	Total Well Depth (feet BTOC)	Approximate Screen Interval (feet BTOC)	Approximate Screen Interval (feet msl)
<u>Site 7, South AVGAS Tank Sludge Disposal Area</u>								
WHF-7-1	VS	S	185.06	187.75	NA	143.38	133 to 143	44 to 34
<u>Site 8, AVGAS Fuel Spill Area</u>								
WHF-8-1	VS	I	172.31	173.14	NA	180.70	170 to 180	2 to -7
<u>Site 29, Auto Hobby Shop</u>								
WHF-29-1	IIA	S	193.92	193.53	NA	139.48	124 to 139	69 to 54
WHF-29-2	IIA	S	191.85	191.52	NA	136.90	121 to 136	70 to 55
WHF-29-3	IIA	S	194.36	194.02	NA	139.64	124 to 139	70 to 55
WHF-29-4	IIA	S	196.17	195.78	NA	139.10	124 to 139	71 to 56
WHF-29-5	IIA	S	193.78	193.47	NA	132.14	117 to 132	76 to 61
<u>Site 30, South Field Maintenance Hangar Area</u>								
WHF-30-3	IIA	S	179.29	179.11	NA	134.60	119 to 134	60 to 45
WHF-30-4	IIA	S	181.88	181.49	NA	135.44	120 to 135	61 to 46
WHF-30-5	IIA	S	182.16	181.89	NA	157.53	147 to 157	34 to 24
<u>Site 3, Underground Waste Solvent Storage Area</u>								
WHF-3-1	VS	I	173.43	174.92	NA	153.17	143 to 153	31 to 21
WHF-3-1D	IIA	D	173.22	172.97	0 to 104	180.29	170 to 180	2 to -8
WHF-3-1S	IIA	S	173.24	172.97	0 to 105	123.22	113 to 123	59 to 49
WHF-3-2	VS	I	173.32	175.37	NA	153.20	143 to 153	32 to 22
WHF-3-2D	IIA	D	173.41	173.14	NA	176.17	171 to 176	2 to -3
WHF-3-2S	IIA	S	(¹)	172.78	NA	114.12	99 to 114	73 to 58
WHF-3-3D	IIA	D	175.90	175.69	0 to 112	180.57	170 to 180	5 to -5

Table 2-2 (Continued)
Summary of Remedial Investigation and Feasibility Study
Monitoring Well Construction Details

**Remedial Investigation and Feasibility Study, Phase II A
Technical Memorandum No. 5, Groundwater Assessment
NAS Whiting Field, Milton, Florida**

Monitoring Well Designation	RI Phase of Well Completion	Well Completion Zone	Land Surface Elevation (feet msl)	TOC Elevation (feet msl)	Surface Casing Length (feet bbls)	Total Well Depth (feet BTOC)	Approximate Screen Interval (feet BTOC)	Approximate Screen Interval (feet msl)
Site 3, Underground Waste Solvent Storage Area (Continued)								
WHF-3-3	I	I	175.72	178.18	0 to 120	154.22	149 to 154	29 to 24
WHF-3-3S	IIA	S	175.46	175.23	NA	110.80	100 to 110	75 to 65
WHF-3-4	IIA	S	174.43	174.38	0 to 102	121.45	111 to 121	63 to 53
WHF-3-7D	IIA	D	173.45	173.29	0 to 109	180.54	175 to 180	-2 to -7
WHF-3-7I	IIA	I	173.46	173.25	0 to 109	139.92	134 to 139	39 to 34
WHF-3-7S	IIA	S	173.47	173.27	0 to 109	123.80	113 to 123	60 to 50
Site 4, North AVGAS Tank Sludge Disposal Area								
WHF-4-1	VS	I	170.42	172.45	NA	153.07	143 to 153	29 to 19
Site 32, North Field Maintenance Hangar Area								
WHF-32-1	IIA	S	172.13	171.88	NA	110.34	95 to 110	76 to 61
WHF-32-2	IIA	S	172.62	172.27	NA	110.54	95 to 110	77 to 62
WHF-32-3	IIA	S	172.58	(²)	NA	110.02	95 to 110	NA
WHF-32-4	IIA	S	172.07	(²)	NA	110.25	95 to 110	NA
WHF-32-5	IIA	S	172.28	172.15	NA	109.61	94 to 109	78 to 63
UST Monitoring Wells (Site 7)								
WHF-1466-1	NA	S	178.10	177.79	NA	135	120 to 135	57 to 62
WHF-1466-1D	NA	I	191.60	191.24	0 to 135	158	153 to 158	38 to 33
WHF-1466-2	NA	S	181.00	180.72	NA	120	105 to 120	75 to 60
WHF-1466-2D	NA	I	190.40	190.03	0 to 133	144	139 to 144	51 to 46
WHF-1466-3	NA	S	197.70	197.42	NA	145	130 to 145	67 to 52
WHF-1466-3D	NA	I	180.10	179.75	0 to 126	149	144 to 149	35 to 30
WHF-1466-4	NA	S	190.60	190.37	NA	151	132 to 147	54 to 39

Table 2-2 (Continued)
Summary of Remedial Investigation and Feasibility Study
Monitoring Well Construction Details

**Remedial Investigation and Feasibility Study, Phase IIA
Technical Memorandum No. 5, Groundwater Assessment
NAS Whiting Field, Milton, Florida**

Monitoring Well Designation	RI Phase of Well Completion	Well Completion Zone	Land Surface Elevation (feet msl)	TOC Elevation (feet msl)	Surface Casing Length (feet bbls)	Total Well Depth (feet BTOC)	Approximate Screen Interval (feet BTOC)	Approximate Screen Interval (feet msl)
UST Monitoring Wells (Site 7) (Continued)								
WHF-1466-5R	NA	S	175.60	175.18	NA	132	117 to 132	58 to 43
WHF-1466-6	NA	S	173.40	173.09	NA	131	115 to 130	57 to 42
WHF-1466-7	NA	S	172.50	172.26	NA	131	115 to 130	56 to 41
WHF-1466-8	NA	S	172.50	172.24	NA	131	116 to 131	57 to 42
WHF-1466-9	NA	S	173.40	173.20	NA	116	100 to 115	72 to 57
WHF-1466-10	NA	S	172.50	172.08	NA	122	107 to 122	65 to 50
WHF-1466-11	NA	S	176.30	175.87	NA	104	89 to 104	86 to 71
WHF-1466-12	NA	S	190.20	189.92	NA	147	125 to 147	65 to 43
WHF-1466-13 (WHF-30-2)	NA	S	177.50	177.31	NA	130	115 to 130	62 to 47
WHF-1466-14	NA	S	181.00	181.05	NA	135	120 to 135	61 to 46
WHF-1466-15	NA	S	178.14	177.81	NA	135	119 to 134	57 to 43
WHF-1466-16	NA	S	176.74	176.49	NA	135	120 to 135	56 to 41
WHF-1466-17	NA	S	178.20	177.91	NA	134	119 to 134	58 to 43
WHF-1466-18	NA	S	185.80	185.58	NA	135	120 to 135	65 to 50
WHF-1466-19	NA	S	189.20	188.81	NA	145	130 to 145	70 to 55
WHF-1466-20	NA	S	188.00	187.76	NA	140	125 to 140	62 to 47
UST Monitoring Wells (Site 4)								
WHF-1467-1	NA	S	168.8	168.51	NA	97	82 to 97	87 to 72
WHF-1467-2	NA	S	157.7	157.44	NA	85	70 to 85	87 to 72
WHF-1467-2D	NA	I	(¹)	(¹)	NA	123	NA	NA

Table 2-2 (Continued)
Summary of Remedial Investigation and Feasibility Study
Monitoring Well Construction Details

Remedial Investigation and Feasibility Study, Phase II A
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Monitoring Well Designation	RI Phase of Well Completion	Well Completion Zone	Land Surface Elevation (feet msl)	TOC Elevation (feet msl)	Surface Casing Length (feet bsl)	Total Well Depth (feet BTOC)	Approximate Screen Interval (feet BTOC)	Approximate Screen Interval (feet msl)
UST Monitoring Wells (Site 4) (Continued)								
WHF-1467-3	NA	S	157.4	157.25	NA	95	80 to 95	77 to 62
WHF-1467-4	NA	S	175.0	174.64	NA	103	88 to 103	86 to 71
WHF-1467-5	NA	S	173.5	173.27	NA	100	85 to 100	88 to 73
WHF-1467-5D	NA	I	NA	171.77	NA	140	NA	46 to 31
WHF-1467-6	NA	S	176.8	176.54	NA	103	88 to 103	58 to 43
WHF-1467-6D	NA	I	166.4	166.23	0 to 88	102	97 to 102	69 to 63
WHF-1467-7	NA	S	157.7	157.48	NA	85	70 to 85	87 to 72
WHF-1467-7D	NA	I	158.5	158.18	0 to 97	129	124 to 129	34 to 29
WHF-1467-8	NA	S	173.5	173.24	NA	107	92 to 107	81 to 66
WHF-1467-8D	NA	S	169.2	168.85	0 to 107	127	112 to 127	57 to 42
WHF-1467-9	NA	S	163.3	162.99	NA	100	85 to 100	77 to 62
WHF-1467-11	NA	S	156.9	156.49	NA	90	75 to 90	81 to 66
WHF-1467-13R		S	164.9	164.57	NA	90	75 to 90	90 to 75
WHF-1467-14	NA	S	174.7	174.47	NA	110	95 to 110	79 to 64
WHF-1467-16	NA	S	177.6	177.05	NA	115	100 to 115	77 to 62
WHF-1467-17	NA	S	(¹)	115.00	NA	106	91 to 106	24 to 9
WHF-1467-18	NA	S	175.4	175.12	NA	115	100 to 115	75 to 60
WHF-1467-19	NA	S	169.8	169.33	NA	105	90 to 105	79 to 64
WHF-1467-20	NA	S	172.5	172.26	NA	110	95 to 110	77 to 62
WHF-1467-21	NA	S	174.3	173.93	NA	111	96 to 111	77 to 62
WHF-1467-22R	NA	S	172.7	172.38	NA	103	88 to 98	84 to 74

See notes at end of table.

Table 2-2 (Continued)
Summary of Remedial Investigation and Feasibility Study
Monitoring Well Construction Details

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Monitoring Well Designation	RI Phase of Well Completion	Well Completion Zone	Land Surface Elevation (feet msl)	TOC Elevation (feet msl)	Surface Casing Length (feet bsl)	Total Well Depth (feet BTOC)	Approximate Screen Interval (feet BTOC)	Approximate Screen Interval (feet msl)
UST Monitoring Wells (Site 4) (Continued)								
WHF-1467-23	NA	S	172.9	172.57	NA	101	91 to 101	86 to 71
WHF-1467-24	NA	S	170.1	169.77	NA	100	85 to 95	84 to 69
WHF-1467-25	NA	S	160.9	160.85	NA	91	75 to 90	84 to 69
WHF-1467-26	NA	S	166.5	166.28	NA	90	73 to 83	86 to 76
WHF-1467-27	NA	S	174.1	173.74	NA	116	100 to 115	72 to 57
WHF-1467-28	NA	S	173.3	173.03	NA	106	90 to 105	82 to 67
WHF-1467-29	NA	S	169.1	168.96	NA	100	80 to 95	83 to 68
WHF-1467-30	NA	S	174.4	174.23	NA	102.5	87 to 102	86 to 71
WHF-1467-31	NA	S	171.6	171.21	NA	125	99 to 114	61 to 46
WHF-1467-32	NA	S	162.8	162.31	NA	100	82 to 97	77 to 62
WHF-1467-33	NA	S	170.1	169.86	NA	84	60 to 74	100 to 85

¹ Land surface or top of casing elevation not available.

² Top of casing damaged after survey.

Notes: RI = Remedial Investigation.

msl = mean sea level.

TOC = top of casing.

bsl = below land surface.

BTOC = below top of casing.

IIA = Remedial Investigation Phase IIA.

S = shallow completion zone.

I = intermediate depth completion zone.

NA = not applicable.

VS = Verification Study.

D = deep completion zone.

I = Remedial Investigation Phase I.

AVGAS = aviation gasoline.

UST = underground storage tank.

placed in the remaining annular space and brought up to a level approximately 2 feet bls. After the grout had cured, the protective well casing was installed.

Intermediate and Deep Monitoring Well Installation. The mud rotary drilling technique was used for drilling boreholes to install intermediate and deep monitoring wells (wells in which the top of the screen was set below the water table). The mud rotary drilling technique uses an inert drilling mud, which is collected in shallow pits excavated near the drill rig and lined with plastic sheeting. In areas where a pit could not be dug, such as the industrial area, a steel mud tub was used when drilling through concrete or asphalt. A new batch of drilling mud was made at each boring location and the drilling mud was circulated to remove cuttings until the desired depth was reached.

Upon completion of the well installation and drilling activities at a single location, the drilling mud was transferred to a shallow pit within the area of contamination. Typically, a 5-foot length of screen was installed at deep and intermediate wells. However, the screen length was increased to 10 feet when setting a well in a poorly producing lithologic unit such as a silty or clayey sand. The additional length of screen was added to increase the volume of water within the screen zone of wells set in the poorly producing lithologic units. Individual lithologic descriptions and construction details for each monitoring well are presented in RI/FS Technical Memorandum No. 2 Geologic Assessment, NAS Whiting Field, Milton, Florida (ABB-ES 1995).

Mud rotary drilling also was used to install surface casing for double-cased wells when there was the potential for downward migration of contaminants through an existing clay layer or when drilling through a known contaminant plume. Double-cased wells were installed when a clay layer, greater than 3 feet in thickness, was encountered as confirmed during split-spoon sampling. If the surface casing was not properly installed, the borehole could serve as a conduit for the water of the upper unit (along with any potential contaminants) to migrate to the lower zone of the aquifer. The outer casing for the well was constructed of 6-inch ID diameter, schedule 40 PVC grouted into the clay layer.

After the grout had set (a minimum of 24 hours), any grout within the annular space of the casing and the bottom of the outer casing was drilled through using the mud rotary technique, and the monitoring well was constructed at the desired depth.

Monitoring wells were installed during the RI Phase IIA in accordance with the following standards:

- *U.S. Environmental Protection Agency Standard Operating Procedures and Quality Assurance Manual (SOPQAM)*, Environmental Compliance Branch, Region IV, February 1, 1991; and
- *Guidelines for Groundwater Monitoring Well Installation*, March 27, 1989, SOUTHNAVFACENGCOM.

Sampling equipment was thoroughly decontaminated in accordance with procedures presented in Appendix B of the SOPQAM (USEPA, 1991).

Each of the shallow intermediate and deep aquifer zone monitoring wells was developed according to the methods specified in Volume II of III RI/FS workplan (ABB-ES, 1990) and USEPA SOPQAM (USEPA, 1991). Well development was completed using single displacement (Waterra™) and submersible (Grundfos™) pumps. The Waterra™ was initially used to remove any drilling fluids or cuttings and fine formation materials (sand, silt, or clay). A Grundfos™ submersible pump was then used to complete development. Well development was considered complete when the pH, specific conductivity, and temperature measurements had stabilized and the formation water was unchanged.

The locations and elevations of each newly installed monitoring well, including those installed during the verification study (Geraghty & Miller, 1986), were surveyed by Northwest Florida Engineering and Surveying (Florida-registered land surveyors). Horizontal and vertical measurements of the monitoring wells were made to a closing error within 0.10 and 0.01 foot, respectively. Elevations were measured for the top of the monitoring well PVC casing, the top of the steel protective casing, and the top of the concrete pad. The surveyed elevations are summarized in Table 2-2.

2.3 MONITORING WELL PURGING AND GROUNDWATER SAMPLING. The RI Phase IIA groundwater sampling program was conducted between October 13, 1993, and January 21, 1994. In addition, groundwater samples were collected as part of the UST investigation for Sites 1466 (RI Site 7) and 1467 (RI Site 1466). The UST groundwater sampling program was conducted during August 1993. The data from the UST investigation were incorporated with this report.

A total of 125 monitoring wells were sampled at 23 RI sites and background locations during the Phase IIA investigation. The locations of the monitoring wells where groundwater samples were collected are shown on Figures 2-2 and 2-3. A total of 79 samples were collected from shallow monitoring wells, 31 samples from intermediate monitoring wells, and 15 samples from deep monitoring wells.

Three monitoring wells (WHF-BKG-1, WHF-BKG-2, and WHF-BKG-3) were installed to assess background groundwater quality for NAS Whiting Field (Figure 2-2). With possible exception of Site 17, all three monitoring wells are located hydraulically upgradient from all RI/FS sites identified at the facility (Figures 2-4 and 2-5; ABB-ES, 1994b).

Groundwater samples were collected in accordance with the procedures outlined in the NAS Whiting Field RI/FS workplan, (ABB-ES, 1990) and the USEPA Region IV SOPQAM (USEPA, 1991). Groundwater samples for laboratory analyses were shipped by overnight delivery to the laboratory under chain-of-custody protocol for TCL and TAL analysis.

Prior to collecting groundwater samples, water-level measurements were recorded and well volumes were calculated. Well purging operations were then conducted using either a submersible pump, bladder pump, or a bailer. During the removal of each well purge volume, groundwater samples were collected and measured for field parameters including pH, temperature, and specific conductivity. Well purging operations were suspended once values for the field parameter measurements were within 5 percent on three subsequent well volumes. Otherwise, purging continued until five well volumes were removed. Purging was also considered

complete if a monitoring well was purged dry (all standing water within the well casing and/or screened zone had been removed).

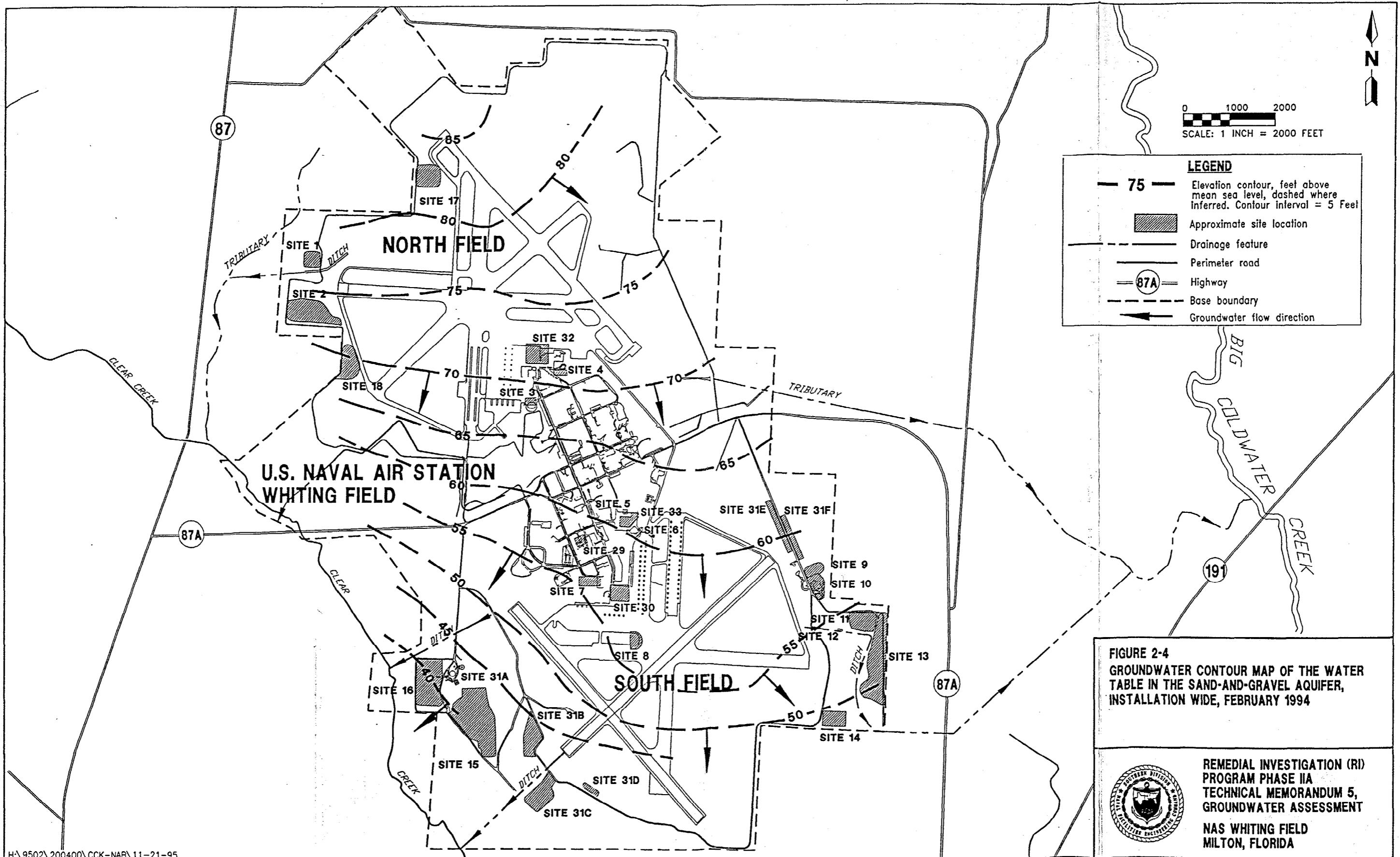
Groundwater samples were collected from each monitoring well using a decontaminated Teflon™ bailer attached to a stainless-steel, Teflon™-coated cable. The bailers were decontaminated between each use.

2.4 ANALYSES OF GROUNDWATER SAMPLES. Groundwater samples collected using the BAT samples were analyzed by USEPA SW846 Method 8240. The sample volume was 25 milliliters (ml) to obtain detection limits in the range of Federal and State MCLs. VOC analysis was conducted as a screening analysis and the data package provided by the laboratory was NEEA Level E (USEPA Level IV; USEPA, 1987). The groundwater samples collected from monitoring wells were analyzed for TCL VOCs, SVOCs, pesticides, and PCBs and TAL inorganic analytes. The TAL inorganic samples were not filtered and represent total concentrations. The samples were analyzed in conformance with NEEA Level C (USEPA Level III, USEPA, 1987) quality assurance and reporting requirements with 10 percent of the samples analyzed and reported in conformance with NEEA Level D (USEPA Level IV; USEPA 1987). In addition, the field parameters of pH, specific conductance, and temperature were recorded at sample collection.

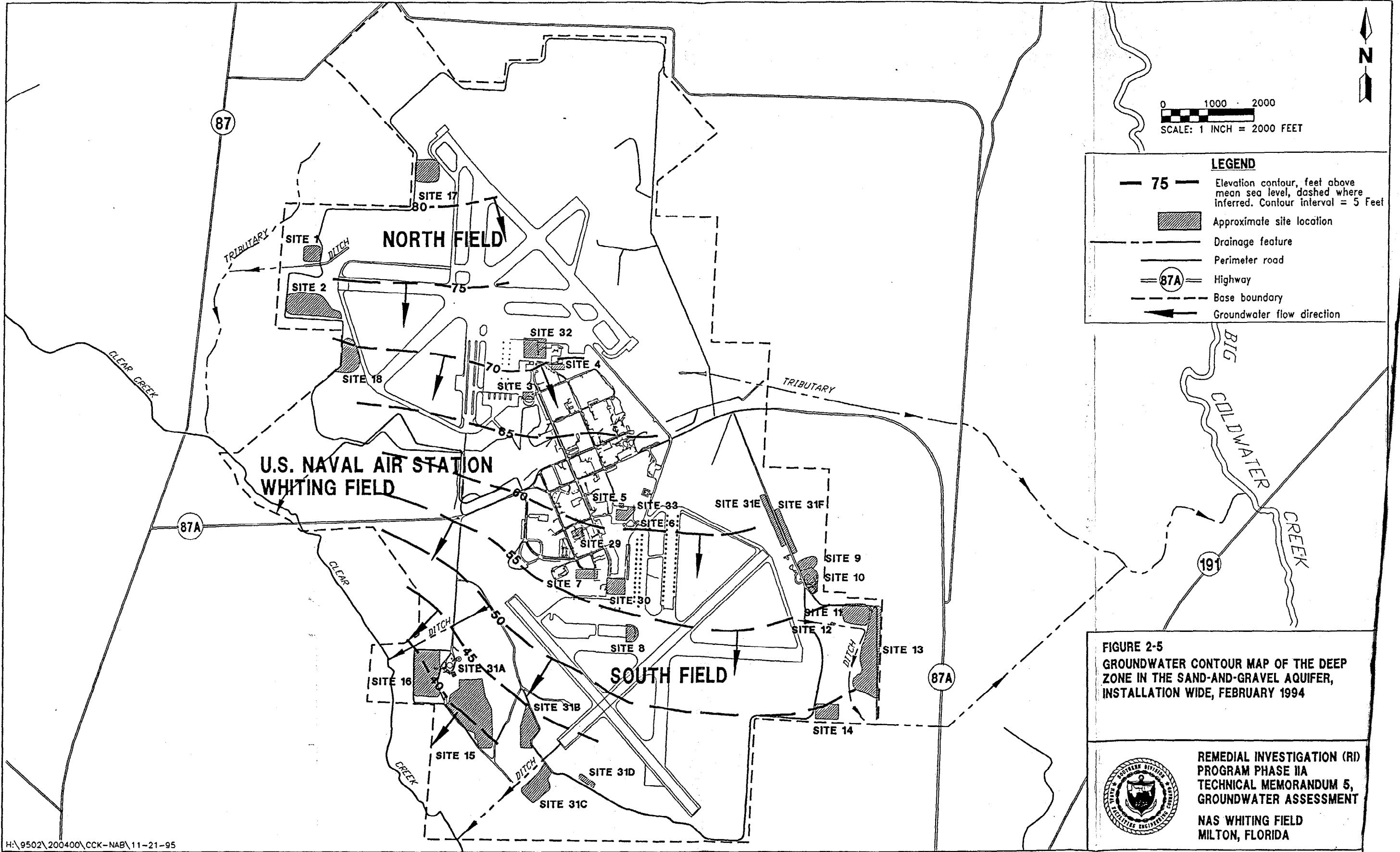
Groundwater samples collected from monitoring wells installed by the UST group were analyzed for the same parameters, except field parameters were not recorded and analyses for TAL metals did not include cyanide. A summary of the analytical results is presented in Appendix D.

2.5 WATER LEVEL EVALUATION MEASUREMENT SURVEY. Two rounds of water level elevation measurements were conducted during RI Phase IIA. The groundwater measurements were collected using Solinst™ and Keck™ electronic water level indicators. The first round of the water level elevation measurements was taken between September 30 and October 1, 1993. Water level elevation measurements were made at a total of 82 monitoring wells. The second round of water level elevation measurements was taken on February 8 and 9, 1994, and included the previously measured 82 monitoring wells and collection of additional water level elevation data from 47 monitoring wells installed under the UST program. The water level elevation data were used to develop groundwater contour maps, which illustrate groundwater flow directions for the entire installation and the industrial area.

Figures 2-4 and 2-5 present groundwater contour maps for shallow and deep zones, respectively, of the sand-and-gravel aquifer for measurements made in February 1994. Groundwater contour maps for the first sampling event (November 1993) are similar to the February 1994 contour maps and are, therefore, not presented in this report. Additional information including contour maps of the potentiometric surface of the shallow and deep aquifer zones for both water level measurement events are included in Technical Memorandum No. 4, Hydrogeologic Assessment, NAS Whiting Field (ABB-ES, 1994b).



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3.0 DATA QUALITY OBJECTIVES (DQO) ASSESSMENT OF GROUNDWATER SAMPLING AND ANALYSIS

3.1 QUALITY CONTROL (QC). This chapter summarizes the overall quality of the analytical results for groundwater sampling and analytical activities from the RI Phase IIA conducted at NAS Whiting Field. It describes the field and laboratory QC procedures observed during the investigation and provides an overall assessment of data quality based on the data validation process. Data validation is the technical review of individual analytical results relative to the criteria defined by the DQOs and the Quality Assurance Project Plan (QAPP). The data validation process described in this chapter assessed each data package individually for laboratory performance, but did not evaluate the analytical results relative to field QC samples such as trip, field, or rinsate blanks. The evaluation of the analytical results relative to their associated QC samples is summarized separately for validated data obtained for specific samples and target compounds.

3.1.1 Sample Handling, Delivery, and Chain of Custody Collection of groundwater samples was performed in accordance with the procedures outlined in the site-specific quality assurance plan addendum and quality assurance plan (ABB-ES, 1990), and in accordance with the USEPA Region IV SOPQAM (USEPA, 1991).

All samples were properly preserved, placed in coolers packed with bagged ice immediately after their collection, and shipped to the laboratory. All samples were shipped, complete with chain-of-custody forms, to CH₂M HILL Laboratories in Alachua, Florida. Upon arrival at the laboratory, the chain-of-custody form and temperature were checked for each cooler. The chain-of-custody form was then signed by laboratory personnel and the samples were accepted for analyses.

Review of the field notebooks and chain-of-custody forms did not identify any non-conformance relative to sample collection, handling, shipping, or storage.

3.1.2 Field QC Field QC samples are used to: (1) assess the existence and magnitude of contaminants introduced during field activities, and (2) assess the potential for introduction of contaminants during sample storage and transport. Three types of field QC samples were used to assess contamination that may have been introduced by field activities. The three types of QC samples were equipment rinsate samples, field blanks, and trip blanks. The description and purpose of each of these three samples are presented in the following paragraphs.

- **Equipment Rinsate Blank.** After a piece of sampling equipment was decontaminated, it was rinsed with organic-free water manufactured onsite using a potable water filtration system. A sample of the final rinse water was submitted as an equipment rinsate blank. The purpose of the equipment rinsate blank was to assess the adequacy of decontamination procedures by identifying contaminants that may have been introduced because of incomplete equipment decontamination. The equipment rinsate blanks were analyzed for the same analytical parameters as the corresponding environmental samples. Equipment rinsate blanks were typically identified with the letters "RB" in the alpha-numeric designator.

- Field Blank. The field blank was a sample of the organic-free water. This blank was used to assess contamination that may have been introduced by the potable water source or the water filtration system. The number of field blanks analyzed was based on either one field blank for each batch of organic-free water produced or one per field event. The field blank was analyzed for the same parameters as the corresponding environmental samples. Field blanks were typically identified with the letters "FB" in the alpha-numeric designator.
- Trip Blank. The trip blank was a sample of organic-free water that was prepared and similarly packaged by the laboratory prior to the sampling event and traveled with the sampling bottles to the site. The trip blank samples were not opened at the site or at any time prior to laboratory analysis. The purpose of the trip blank was to assess the potential for contamination of the samples via VOC emissions during sample bottle shipment and storage, prior to analysis. One trip blank was included in each shipping container that contained VOC samples.

Target analytes detected in the field QC samples are discussed in Appendix D of this report.

3.1.3 Laboratory QC Laboratory QC samples were used to (1) assess the existence and magnitude of contaminants introduced during the analyses of the samples, (2) assess the potential introduction of contaminants during sample storage and transport, and (3) assess the precision and accuracy of the chemical analytical methodology. Two types of laboratory QC samples were used to assess the existence and magnitude of contamination that may have been introduced by laboratory activities: the method blank for organics analyses and the preparation blank for inorganics analyses. The other four laboratory QC samples were the duplicate sample, matrix spike and matrix spike duplicate (MS/MSD), and laboratory control samples (LCS) used to assess analytical precision and/or accuracy. Compounds of known concentration (surrogates) are typically added (spiked) to each environmental sample to assess analytical accuracy and precision. The description and purpose of these samples is described in the following paragraphs.

- Duplicate Sample. One duplicate or replicate field sample was collected for every 10 field samples of the same matrix. The duplicate sample was collected from the same location and depth interval, as appropriate, of an environmental sample. The purpose of the duplicate samples was to assess sample analytical precision. The duplicate sample was analyzed for the same analytical parameters as the environmental sample.
- MS/MSD Sample Pairs. One MS/MSD sample pair was collected for every 20 field samples of the same matrix. The MS/MSD sample pair is collected from the same location and depth interval, as appropriate, of an environmental sample. The purpose of the MS/MSD sample pair is to assess sample analytical accuracy and precision of analytical methods for organic compounds.
- Method Blank and Preparation Blank. The method and preparation blanks are samples of organic-free water prepared by the laboratory at the time of analysis. Method and preparation blanks are treated as samples in that they undergo the same analytical process as the corresponding environmental samples. The purpose of the method blank is to assess the

potential for contamination of samples within the laboratory via VOCs, SVOCs, pesticides, and PCBs during sample analysis. The preparation blank is used to assess the potential contamination of samples via TAL inorganic parameters. The method and preparation blanks are used by the laboratory to monitor analytical performance, to assess contamination introduced during the analytical process, and to assess the representativeness of the chemical analytical procedure.

- Laboratory Control Sample (LCS). An LCS consists of an ideal matrix (usually ASTM Type II water) spiked with a known amount of the CLP TAL inorganic parameter of interest. The LCS is prepared (digested) and analyzed with the field samples. The LCS is designed to monitor the efficiency of the overall analytical procedure, including sample preparation, and the resulting analyte recoveries must fall within pre-established acceptance limits.
- Matrix Spike Sample. Pre-digestion CLP TAL inorganic parameter spikes are analogous to the MS/MSD spike recovery for organic analyses in that they measure the effects of the sample matrix on the recovery of a known quantity of analyte after both sample preparation and analysis. If the pre-digestion spike recovery did not fall within the acceptance window of 75 to 125 percent, then a post-digestion spike monitors instrument performance and matrix effects. If both the pre- and post-digestion spike recoveries fall outside the acceptance limits, then the data are annotated to indicate nonconformance.
- Surrogate Spikes. Surrogate spike recoveries serve to estimate accuracy, and the surrogates are added to each environmental sample. Surrogate compounds are the structural homologs of target compounds, often with deuterium substituted for hydrogen (in the aqueous solvent), and are, therefore, expected to behave in a similar manner during analysis. Spike recoveries are used to monitor both matrix effects and instrument accuracy performance.

3.1.4 Data Review and Validation Summary Before the analytical results were released by the laboratory, both the sample and QC data were carefully reviewed to verify sample identity, instrument calibration, detection limits, dilution factors, numerical computations, accuracy of transcriptions, and chemical interpretations. The QC data were reduced and spike recoveries were included in control charts; the resulting data were reviewed to ascertain whether they were within the laboratory defined limits for accuracy and precision. Any nonconforming data were discussed in the data package cover letter and case narrative.

Data validation is the technical review of a data package using criteria established in the data quality objectives (DQOs) and the QAPP. The data were reviewed and validated using the NEESA (1988) guidance document 20.2-047B, Sampling and Chemical Analysis Quality Assurance Requirements for the Navy Installation Restoration Program. The data review and validation process is independent of the laboratory data checks.

Analytical results (see Appendix C) were validated by C.C. Johnson & Malhotra Environmental Engineers and Scientists (CCJM), Lakewood, Colorado. CCJM followed USEPA national functional guidelines for inorganic and organic analysis (1988b;

1988c) and requirements found in Section 7.3 of the NEESA sampling program (NEESA, 1988).

Laboratory QC is assessed in batches of samples each containing no more than 20 environmental samples, defined as a sample delivery group (SDG).

Table B-1 provided in Appendix B presents a list of SDG identification numbers and the groundwater samples associated with each SDG.

Qualifiers are applied by both laboratory and data validators for analytical results when an analyte is not detected above the reported sample quantitation limit or when the analysis does not meet the acceptance criteria. Qualifiers are annotations consisting of single- or double-letter abbreviations that may indicate nondetection of an analyte, or a problem with the accuracy or precision of the reported analytical results, or inability to positively identify the analyte. Annotations used in the data summary tables include the following.

- U Undetected. The organic analyte was not detected above the contract required quantitation limit (CRQL) or the inorganic analyte was not detected above the contract required detection limit (CRDL). The "U" designator is also used to qualify common laboratory contaminants. The "U" designator is applied to an environmental sample when a common laboratory contaminant is detected in an environmental sample at a concentration less than 10 times the value of the concentration detected in any corresponding field QC blank, method blank, or preparation blank.
- J Estimated. The analyte was present, but the reported value may not be accurate or precise. The J designator is used to qualify an analyte that was present at a concentration between the CRQL and the method detection limit (MDL), or the data "failed" some of the analytical validation criteria but not a sufficient number of validation criteria to reject the data.
- UJ UJ indicates that the quantitation limit is estimated and may not accurately and precisely measure the analyte in the sample. The analyte was not detected above the reported sample quantitation limit.
- R Rejected. Data were rejected by the data validator during comparison of the NEESA Level C data package with the analytical functional guideline criteria. The R designator indicates a significant variance in acceptable laboratory performance. Either reanalysis or resampling and analysis would be necessary to determine the presence or absence of the target analyte(s).

The above data qualifiers, as defined by USEPA functional guidelines (USEPA, 1988b; 1990) were used in reporting validated data.

All analytical results reference the CRQL for organic compounds or the CRDL for inorganic analytes. The CRQL and CRDL are constant or fixed concentrations for each analyte, specified by the Navy for each statement of work (SOW). CRQLs and CRDLs may be adjusted to dilutions during the course of the analyses; therefore, the unqualified usage of the CRQLs and CRDLs is retained. CRQLs and CRDLs are included in Appendix C (Validated Analytical Reports). CRQLs for organic analyses are provided in Table 3-1 and CRDLs for inorganic analyses are provided in Table 3-2.

Table 3-1
Target Compound List (TCL) Contract Required Quantitation Limits (CRQL)

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Compound	CAS Number	Quantitation Limit ¹
		Water ($\mu\text{g/l}$)
Chloromethane	78-87-3	10
Bromomethane	74-83-9	10
Vinyl chloride	75-01-4	10
Chloroethane	75-00-3	10
Methylene chloride	75-09-2	10
Acetone	67-64-1	10
Carbon disulfide	75-15-0	10
1,1-Dichloroethene	75-35-4	10
1,1-Dichloroethane	75-34-3	10
1,2-Dichloroethene (total)	540-59-0	10
Chloroform	67-66-3	10
1,2-Dichloroethane	107-06-2	10
2-Butanone	78-93-3	10
1,1,1-Trichloroethane	71-55-6	10
Carbon tetrachloride	56-23-5	10
Bromodichloromethane	75-27-4	10
1,2-Dichloropropane	78-87-5	10
cis-1,3-Dichloropropene	10061-01-5	10
Trichloroethene	79-01-6	10
Dibromochloromethane	124-48-1	10
1,1,2-Trichloroethane	79-00-5	10
Benzene	71-43-2	10
trans-1,3-Dichloropropene	10061-02-6	10
Bromoform	75-25-2	10
4-Methyl-2-pentanone	108-10-1	10
2-Hexanone	591-78-6	10
Tetrachloroethene	127-18-4	10
Toluene	108-88-3	10
1,1,2,2-Tetrachloroethane	79-34-5	10
Chlorobenzene	108-90-7	10
Ethylbenzene	100-41-4	10
Styrene	100-42-5	10
Xylenes (total)	1330-20-7	10
Phenol	108-95-2	10
bis(2-Chloroethyl)ether	111-44-4	10

See notes at end of table.

Table 3-1 (Continued)
Target Compound List (TCL) Contract Required Quantitation Limits (CRQL)

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Compound	CAS Number	Quantitation Limit ¹
		Water ($\mu\text{g/L}$)
2-Chlorophenol	95-57-8	10
1,3-Dichlorobenzene	541-73-1	10
1,4-Dichlorobenzene	106-46-7	10
1,2-Dichlorobenzene	95-50-1	10
2-Methylphenol	95-48-7	10
2,2'-oxybis(1-Chloropropane) ²	108-60-1	10
4-Methylphenol	106-44-5	10
N-Nitroso-di-n-propylamine	621-64-7	10
Hexachloroethane	67-72-1	10
Nitrobenzene	98-95-3	10
Isophorone	78-59-1	10
2-Nitrophenol	88-75-5	10
2,4-Dimethylphenol	105-67-9	10
bis(2-Chloroethoxy)methane	111-91-1	10
2,4-Dichlorophenol	120-83-2	10
1,2,4-Trichlorobenzene	120-82-1	10
Naphthalene	91-20-3	10
4-Chloroaniline	106-47-8	10
Hexachlorobutadiene	87-68-3	10
4-Chloro-3-methylphenol	59-50-7	10
2-Methylnaphthalene	91-57-6	10
Hexachlorocyclopentadiene	77-47-4	10
2,4,6-Trichlorophenol	88-06-2	10
2,4,5-Trichlorophenol	95-95-4	25
2-Chloronaphthalene	91-58-7	10
2-Nitroaniline	88-74-4	25
Dimethylphthalate	131-11-3	10
Acenaphthylene	208-96-8	10
2,6-Dinitrotoluene	606-20-2	10
3-Nitroaniline	99-09-2	25
Acenaphthene	83-32-9	10
2,4-Dinitrophenol	51-28-5	25
4-Nitrophenol	100-02-7	25
Dibenzofuran	132-64-9	10
2,4-Dinitrotoluene	121-14-2	10

See notes at end of table.

Table 3-1 (Continued)
Target Compound List (TCL) Contract Required Quantitation Limits (CRQL)

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Compound	CAS Number	Quantitation Limit ¹
		Water ($\mu\text{g/l}$)
Diethylphthalate	84-66-2	10
4-Chlorophenyl-phenyl ether	7005-72-3	10
Fluorene	86-73-7	10
4-Nitroaniline	100-01-6	25
4,6-Dinitro-2-methylphenol	534-52-1	25
N-nitrosodiphenylamine	86-30-6	10
4-Bromophenyl-phenylether	101-55-3	10
Hexachlorobenzene	118-74-1	10
Pentachlorophenol	87-86-5	25
Phenanthrene	85-01-8	10
Anthracene	120-12-7	10
Carbazole	86-74-8	10
Di-n-butylphthalate	84-74-2	10
Fluoranthene	206-44-0	10
Pyrene	129-00-0	10
Butylbenzylphthalate	85-68-7	10
3,3'-Dichlorobenzidene	91-94-1	10
Benzo(a)anthracene	56-55-3	10
Chrysene	218-01-9	10
bis(2-Ethylhexyl)phthalate	117-81-7	10
Di-n-octylphthalate	117-84-0	10
Benzo(b)fluoranthene	205-99-2	10
Benzo(k)fluoranthene	207-08-9	10
Benzo(a)pyrene	50-32-8	10
Indeno(1,2,3-cd)pyrene	193-39-5	10
Dibenz(a,h)anthracene	53-70-3	10
Benzo(g,h,i)perylene	191-24-2	10
alpha-BHC	319-84-6	0.05
beta-BHC	319-85-7	0.05
delta-BHC	319-86-8	0.05
gamma-BHC (Lindane)	58-89-9	0.05
Heptachlor	76-44-8	0.05
Aldrin	309-00-2	0.05
Heptachlor epoxide	1024-57-3	0.05
Endosulfan I	959-98-8	0.05

See notes at end of table.

Table 3-1 (Continued)
Target Compound List (TCL) Contract Required Quantitation Limits (CRQL)

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Compound	CAS Number	Quantitation Limit ¹
		Water ($\mu\text{g/l}$)
Dieldrin	60-57-1	0.10
4,4-DDE	72-55-9	0.10
Endrin	72-20-8	0.10
Endosulfan II	33213-65-9	0.10
4,4-DDD	72-54-8	0.10
Endosulfan sulfate	1031-07-8	0.10
4,4'-DDT	50-29-3	0.10
Methoxychlor	72-43-5	0.50
Endrin ketone	53494-70-5	0.10
Endrin aldehyde	7421-36-3	0.10
alpha-Chlordane	5103-71-9	0.05
gamma-Chlordane	5103-74-2	0.05
Toxaphene	8001-35-2	5.0
Aroclor-1016	12674-11-2	1.0
Aroclor-1221	11104-28-2	2.0
Aroclor-1232	11141-16-5	1.0
Aroclor-1242	53469-21-9	1.0
Aroclor-1248	12672-29-6	1.0
Aroclor-1254	11097-69-1	1.0
Aroclor-1260	11096-82-5	1.0

¹ Quantitation limits listed for soil are based on wet weight. The quantitation limits calculated by the laboratory for soil, calculated on dry weight basis as required by the contract, will be higher.

Source: U.S. Environmental Protection Agency (USEPA), 1993.

Notes: CAS = Chemical Abstract Service

$\mu\text{g/l}$ = micrograms per liter.

BHC = benzenehexachloride.

DDE = dichlorodiphenyldichloroethene.

DDD = dichlorodiphenyldichloroethane.

DDT = dichlorodiphenyltrichloroethane.

Table 3-2
Inorganic Target Analyte List (TAL) Contract
Required Detection Limits (CRDLs)

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Analyte	Contract Required Detection Limit($\mu\text{g/l}$)
Aluminum	200
Antimony	60
Arsenic	10
Barium	200
Beryllium	5
Cadmium	5
Calcium	5,000
Chromium	10
Cobalt	50
Copper	25
Iron	100
Lead	3
Magnesium	5,000
Manganese	15
Mercury	0.2
Nickel	40
Potassium	5,000
Selenium	5
Silver	10
Sodium	5,000
Thallium	10
Vanadium	50
Zinc	20
Cyanide	10
Notes: Any analytical method specified in Exhibit D of U.S. Environmental Protection Agency (USEPA) contract laboratory "Statement of Work for Inorganic analytes, Multi-Media, Multi-Concentration," ILMO3.0, 1991 may be used as long as the documented instrument or method detection limits meet the contract required detection limit (CRDL) requirements. Higher detection limits may only be used in the following circumstance.	
If the sample concentration exceeds 5 times the detection limit of the instrument or method in use, the value may be reported even though the instrument or method detection limit may not equal the CRDL. This is illustrated in the example below.	
For lead:	
Method in use = inductively coupled plasma (ICP) Instrument detection limit (IDL) = 40 Sample concentration = 220 CRDL = 3	
$\mu\text{g/l}$ = micrograms per liter.	

3.2 DQO ASSESSMENT. The QC sample results were evaluated in terms of DQOs. DQOs refer to a set of qualitative and quantitative statements that assess the quality of data generated during the sampling and analytical phases of the project as defined in *Data Quality Objectives for Remedial Response Activities* (USEPA, 1987). The DQOs are defined by: precision, accuracy, representativeness, completeness, and comparability (PARCC). These parameters present an indication of data quality and the confidence that a particular compound may be present or absent in an associated environmental sample.

3.3 SITE-SPECIFIC DATA QUALITY ASSESSMENT. All samples including QA samples were analyzed for TCL VOCs, SVOCs, pesticides and PCBs, and TAL metals and cyanide (total). All samples were analyzed in accordance with USEPA CLP methodology. Results from QC samples as presented in Appendix D are used to measure the PARCC parameters. The following sections present the PARCC measurements specific to each analysis and an overall assessment of DQOs.

3.3.1 Precision Precision is a measure of the reproducibility of the analytical results under a given set of conditions. It is a quantitative measure of the variability of a group of measurements compared to their average value. Precision is measured as the relative percent difference (RPD) between a sample and its duplicate, as calculated for both field duplicate samples and MS/MSD samples. The following equation is used to calculate the RPD:

$$RPD = 100 \times \frac{|D_1 - D_2|}{0.5(D_1 + D_2)} \quad (1)$$

where D_1 and D_2 are the detected concentrations for sample duplicate analyses. The duplicate samples are taken from the same source and analyzed under identical conditions to evaluate precision.

The following section presents the results of precision evaluations for the groundwater sampling program completed at NAS, Whiting Field, Milton, Florida.

Precision Summary for Groundwater Sampling and Analytical Program.

Appendix B, Table B-2, summarizes the compounds detected in field duplicates and MS/MSD samples collected during the groundwater sampling event.

Although the results of the duplicate and MS/MSD analyses indicate that for some analytes the precision was outside control limits, the analytical results for associated samples for organic analyses were not qualified because the blank spike results were all within acceptance limits and the surrogate recoveries for these samples were acceptable. No qualifications were required for the inorganic analytical results based on the RPD values alone.

All data, based on RPD, are acceptable for use in conducting the site characterization, risk assessment, and feasibility study.

3.3.2 Accuracy Accuracy is a quantitative parameter that determines the nearness of a result to its true value. Accuracy measures the bias in a measurement system. The accuracy of each analytical method is evaluated based on percentage recoveries for MS/MSD samples, surrogate recoveries, and initial and continuing calibration standard results. Each of these criteria was evaluated and is discussed below.

Percent Recovery. Percent recovery is calculated using the equation:

$$100 \times \frac{A-B}{C} \quad (2)$$

where

- A = measured concentration in the spiked samples,
- B = measured concentration of the spike compound in the unspiked sample,
and
- C = concentration of the spike.

For those analytes having high recoveries (compared to the QC limits established by the NEESA Level C and D guidelines), the results for the associated samples may be biased high and false positives may be present among the detected concentrations. Low recoveries indicate that the detected results may be biased low and false negatives may be present among the undetected results.

Surrogate Recovery. Laboratory performance on individual samples is established by means of sample spiking. All samples are spiked with system monitoring compounds (surrogates) prior to sample purging to measure their recovery in environmental samples. Surrogate spiking is performed for all analyses except for inorganics. Recoveries for surrogates must be within the limits specified in Appendix A, Contractual Requirements and Equations, Multi-media Multi-concentration, of the USEPA national functional guidelines for organic data review (USEPA, 1988c).

For surrogate recoveries with results higher than upper control limits, samples were annotated with a J qualifier, indicating a potentially biased high result. Low surrogate recoveries resulted in samples being annotated with a UJ qualifier, indicating a potentially biased low result.

Initial and Continuing Calibrations. Initial calibrations are performed to ensure that the instrument is capable of producing acceptable qualitative and quantitative data for volatile organic constituents. Initial calibration demonstrates that the instrument is capable of acceptable performance in the beginning of the analytical run and of producing a linear calibration curve. Continuing calibrations are performed to ensure that the instrument is capable of producing acceptable qualitative and quantitative data.

Continuing calibration establishes the 12-hour relative response factors (RRF) on which the quantitations are based and checks satisfactory performance of the instrument on a day-to-day basis. Initial and continuing calibrations for organic analyses are measured by the percent relative standard deviation (%RSD) and the percent difference (%D). For inorganic analyses the initial calibration verification (ICV) and continuing calibration verification are the measured equivalents.

The evaluation of the %RSD for the initial calibrations and the %D for the continuing calibrations indicates that the response factors for the system performance check compounds (SPCC) generally met the required criteria for VOCs, SVOCs, pesticides, and PCBs. Samples associated with certain SDGs in which several VOCs and SVOCs having RRF, %RSD, and/or %D not meeting the minimum requirements were qualified as J/UJ. Initial and continuing calibration details for each instrument used during laboratory analyses of groundwater samples are included in SDG-specific data validation reports (CCJM, 1993; 1994).

The following sections present the results of evaluations for the groundwater sampling program completed at NAS Whiting Field, Milton, Florida.

Groundwater Sampling Program.

Percent Recovery. Appendix B, Table B-2, summarizes the MS/MSD samples and the analytes that were outside control limits for the groundwater samples collected at the facility. The required control limits were also identified for each analyte.

Certain organic compounds (see Table B-2 in Appendix B) were found to be outside the QC limits for the MS/MSD associated with samples WHF-16-3D, WHF-11-3, WHF-17-2B, WHF-5-9B, and WHF-3-2D. These samples were qualified either UJ or J. All samples associated with these QA samples were validated at NEESA Level C. Based on NEESA Level C validation criteria, data are not qualified due to spike recovery problems when the laboratory control sample demonstrated acceptable performance.

All data, based on percent recoveries, are acceptable for use in conducting site characterization, risk assessment, and feasibility study.

Surrogate Recovery. Laboratory performance on individual samples is established by means of sample spiking. All samples are spiked with system monitoring compounds (surrogates) prior to sample purging to measure their recovery in environmental samples. Surrogate spiking is performed for all analyses except for inorganics. Recoveries for surrogates must be within the limits specified in the USEPA national functional guidelines for organic data review.

For surrogate recoveries with high results, samples were annotated with J qualifier, indicating a potentially biased high result. Low surrogate recoveries resulted in samples being annotated with a UJ qualifier, indicating potentially biased low result.

Table B-2 in Appendix B summarizes the surrogate spike samples and the surrogate compounds that were outside control limits for the groundwater samples collected at NAS Whiting Field sites. The required control limits were also identified for each surrogate compound.

Samples found to have surrogate recoveries outside the specified QC criteria are presented in Appendix B, Table B-3. All the samples associated with these surrogates were qualified in accordance with the NEESA guidelines as presented in Section 3.6.2. All data, based on surrogate recoveries, are acceptable for use in conducting the site characterization, risk assessment, and feasibility study.

Initial and Continuing Calibrations. Initial calibrations are performed to ensure that the instrument is capable of producing acceptable qualitative and quantitative data for compounds on the volatile TCL. Initial calibration demonstrates that the instrument is capable of acceptable performance in the beginning of the analytical run and of producing a linear calibration curve. Continuing calibrations are performed to ensure that the instrument is capable of producing acceptable qualitative and quantitative data.

Continuing calibration establishes the 12-hour RRF on which the quantitations are based and checks satisfactory performance of the instrument on a day-to-day basis. Initial and continuing calibrations for organic analysis are measured by the %RSD and the %D. For inorganic analysis, the ICV and continuing calibration verification are measured.

Appendix B, Table B-3, summarizes the initial and continuing calibration details for the groundwater samples collected at NAS Whiting Field sites.

The evaluation of the %RSD for the initial calibrations and the %D for the continuing calibrations indicate that the response factors for the SPCC generally met the required criteria for VOCs, SVOCs, pesticides, and PCBs. Samples associated with certain SDGs in which several VOCs and SVOCs having RRF not meeting the minimum requirements were qualified as J/UJ.

All data, based on initial and continuing calibrations, are acceptable for use in conducting the site characterization, risk assessment, and feasibility study.

3.3.3 Representativeness Representativeness is the degree to which the data obtained from a sample collection activity accurately reflect site conditions. Factors such as the proper selection of analytical methodology and sampling strategies establish the degree of representativeness achieved. Methods used during the field sampling activities to confirm sampling representativeness include collection of source water blanks, equipment rinsate blanks, and trip blanks. Methods used during the chemical analyses of environmental samples to confirm analytical representativeness include the analysis of analytical method blanks and the adherence to analytical holding times.

The results of the evaluation for the groundwater sampling program are summarized below.

Groundwater Sampling Program. A total of 45 trip blanks, 26 rinsate blanks, 2 field blanks, laboratory method blanks, laboratory preparation blanks from each sample delivery group, and adherence to holding times was evaluated for groundwater samples collected and analyzed at NAS Whiting Field.

Appendix B, Table B-4, presents the analytical results of trip blanks, field blanks, and rinsate blanks. The results of overall evaluation of representativeness are summarized below.

Trip Blanks. Methylene chloride and acetone were detected at concentrations ranging from 1 $\mu\text{g/l}$ to 14 $\mu\text{g/l}$. Methylene chloride was detected in 7 of 42 samples, and acetone was detected in 13 of 42 samples.

Environmental samples associated with the trip blanks with results greater than the IDL but less than 10 times the amount detected in the trip blank were appropriately annotated with a J or UJ qualifier (CCJM, 1993; 1994).

Rinsate Blanks. Chloromethane and methylene chloride were the only VOCs detected in the rinsate blanks. Chloromethane was detected in one rinsate blank at a concentration of $1 \mu\text{g/l}$, and methylene chloride was detected in three rinsate samples at concentrations ranging from $2 \mu\text{g/l}$ to $9 \mu\text{g/l}$.

Three SVOCs, di-n-butylphthalate, phenol, and bis(2-ethylhexyl)phthalate, were detected in some of the rinse blank samples. Di-n-butylphthalate was detected in rinsate samples at concentrations ranging from $4 \mu\text{g/l}$ to $16 \mu\text{g/l}$, phenol was detected in two rinsate samples at concentrations ranging from $1 \mu\text{g/l}$ to $2 \mu\text{g/l}$, and bis(2-ethylhexyl)phthalate was detected in one rinsate sample at $2 \mu\text{g/l}$.

Metals detected at concentrations exceeding the IDL and less than the CRDLs are aluminum, antimony, barium, beryllium, calcium, chromium, copper, cyanide, iron, lead, selenium, magnesium, manganese, mercury, nickel, potassium, silver, sodium, vanadium, and zinc.

Environmental samples associated with samples with results greater than the IDL but less than 10 times the amount detected in the rinsate sample were appropriately annotated with a J or UJ qualifier (CCJM, 1993; 1994).

Field Blank. Chloromethane, phenol, and di-n-butylphthalate were detected in field blanks at concentrations of $2 \text{ J } \mu\text{g/l}$, $20 \mu\text{g/l}$, and $20 \mu\text{g/l}$, respectively. Environmental samples associated with the field blank with results greater than the IDL but less than 10 times the amount detected in the field blank were appropriately annotated with a UJ qualifier.

Copper, iron, sodium, and zinc were detected in the field blank WHF-FB-2. Environmental samples associated with this sample were appropriately annotated with a UJ qualifier (CCJM, 1993; 1994).

Laboratory Method Blanks. Methylene chloride (2 to $5 \mu\text{g/l}$), acetone (6 to $12 \mu\text{g/l}$), 1,1,2,2-trichloroethene ($2 \mu\text{g/l}$), benzene ($2 \mu\text{g/l}$), di-n-butylphthalate (0.8 to $9 \mu\text{g/l}$), di-n-octylphthalate ($3 \mu\text{g/l}$), bis(2-ethylhexyl)phthalate (.5 to $23 \mu\text{g/l}$), beta-benzene hexachloride (BHC; 0.025 $\mu\text{g/l}$), and heptachlor (0.006 $\mu\text{g/l}$) were detected in the laboratory method blanks.

Environmental samples associated with method blanks that contained methylene chloride and acetone with results greater than IDL but less than 10 times the amount detected in the laboratory preparation blanks were annotated with UJ qualifier. Environmental samples associated with method blanks that contained di-n-butylphthalate with results greater than IDL but less than 5 times the amount detected in the laboratory preparation blanks were appropriately annotated with a UJ qualifier (CCJM 1993; 1994).

Laboratory Preparation Blanks. Cyanide, sodium, thallium, and zinc were detected in laboratory preparation blanks. Sample results greater than IDL but less than 5 times the amount detected in the laboratory preparation blanks were appropriately annotated with a J or UJ qualifier (CCJM, 1993; 1994).

Holding Times. All samples were extracted and analyzed within holding times specified by the NEESA data validation guidelines. Several samples were reanalyzed beyond the holding times.

3.3.4 Completeness Analytical completeness is the percentage of useable data detected and validated compared with the total number of samples submitted for analyses. The goal for analytical completeness for the NAS Whiting Field RI is 85 percent useable data. Unusable analytical data are those data with results detected by the laboratory but rejected during the validation process. Less than 5 percent of the individual analytical results for VOCs, SVOCs, pesticides, PCBs, TAL metals, and cyanide (total) were all rejected; therefore, the DQO to meet 85 percent usable data was met.

3.3.5 Comparability Comparability is the confidence with which one data set can be compared with another and the degree to which the data are found to be equivalent. Sample data should be comparable with other measurement data of similar media samples and sampling conditions.

This goal is achieved during the groundwater sampling program through the following means.

- Standard procedures as mentioned in Sections 2.3 and 2.4 were followed for sampling and analytical phases throughout the groundwater sampling program.
- Consistent units of measure were used throughout the project for all the analytical results of the groundwater samples.

3.4 SUMMARY. Based on the results of the QC sample analyses, the established precision and accuracy goals of the project were achieved (Table 3-3). Some contamination was present in some of the field and laboratory QC samples, which required the results from some of the environmental samples to be amended. QC sample results and data validation criteria indicate that greater than 95 percent completeness was achieved, thus, satisfying the 85 percent completeness goal. Standard methods of analyses and units of measure were used throughout the project; therefore, meeting the QC criteria and the DQOs presented in the workplan. The groundwater analytical data are suitable for use in the remedial investigation, risk assessment, and feasibility study.

Table 3-3
Summary of Data Quality Objective (DQO) Assessment

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

	Precision ¹	Accuracy ²	Representativeness	Completeness (%)	Comparability
Groundwater Samples					
TCL VOC	Acceptable	Acceptable	Acceptable	³ > 95	Acceptable
TCL SVOCs	Acceptable	Acceptable	Acceptable	³ > 95	Acceptable
Pesticides and PCBs	Acceptable	Acceptable	Acceptable	100	Acceptable
TAL metals and total cyanides	Acceptable	Acceptable	Acceptable	100	Acceptable
Total petroleum hydrocarbons	Acceptable	Acceptable	Acceptable	100	Acceptable

¹ Cumulative of sampling and analytical components.

² Analytical component.

³ A few samples have components whose concentrations were rejected.

Notes: All the units are expressed as the ratio of number of analytes meeting the quality control criteria to the total number of analytes.

% = percent.

TCL VOCs = target compound list volatile organic compounds.

TCL SVOCs = target compound list semivolatile organic compounds.

PCBs = polychlorinated biphenyls.

TAL = target analyte list.

4.0 GROUNDWATER CRITERIA AND FINDINGS

The following sections describe the criteria used to evaluate the groundwater samples and an assessment of the analytical results against the criteria. Section 4.1 describes criteria used to evaluate the groundwater samples collected with the BAT sampler and those collected from monitoring wells using traditional purging and sampling techniques. Section 4.2 describes the analytical results from the BAT sampling event and Section 4.3 describes the analytical results of groundwater samples collected from monitoring wells.

4.1 EVALUATION CRITERIA FOR GROUNDWATER ANALYTICAL RESULTS. This section presents the rationale used to compare background analytical results and regulatory criteria with analytical results from groundwater samples.

4.1.1 BAT Groundwater Samples Fourteen *in situ* BAT groundwater samples (plus one duplicate sample) were collected from seven PCPT borings at the facility. Because the *in situ* BAT groundwater samples were not collected from developed monitoring wells, the data are only appropriate for preliminary screening and can be used to determine the horizontal and vertical extent of contamination and select possible locations for monitoring wells. Comparison of analyte concentrations detected in the BAT groundwater samples to background analytical values or Federal or State MCLs was not done because the sampling procedure does not provide analytical results that are reproducible when compared with groundwater samples collected from a monitoring well at a similar depth.

4.1.2 Groundwater Samples from Monitoring Wells Groundwater samples were collected from 125 monitoring wells; three of the groundwater samples were from facility-wide hydraulically upgradient monitoring wells. The groundwater analytical data from the RI/FS sites will be compared to the background groundwater concentrations and to Federal and State MCLs.

Comparison to Background Groundwater Quality. Groundwater analytical results for each site were compared to data obtained from three facility-wide, background monitoring wells (WHF-BKG-1, WHF-BKG-2, and WHF-BKG-3) (Figure 2-2). The comparison was used to evaluate whether detected concentrations of inorganic target analytes reflect natural regional and local groundwater conditions or are potentially related to the release of contaminants from one or more of the sites. Compounds that are not naturally occurring, including VOCs, pesticides, PCB compounds, and most SVOCs, are not included when determining background screening values.

The background screening evaluation was made by comparing the inorganic analytical result from the site-specific monitoring well with twice the arithmetic mean of the detected concentrations for the same target analyte in the background monitoring wells. In addition, the singular detection of a target analyte was also multiplied by a factor of 2. Only detected concentrations of individual analytes were included in the arithmetic mean. This evaluation is referred to as the background screening criteria.

The three background monitoring wells are shallow monitoring wells that are screened across the water table. No intermediate or deep background monitoring wells were installed at the facility. Therefore, groundwater samples collected

from intermediate and deep monitoring wells were compared to the background screening criteria developed from the analysis of groundwater samples collected from shallow background monitoring wells.

The locations of the background monitoring wells were based on facility-wide groundwater flow directions as determined during the RI Phase I investigation (ABB-ES, 1992). The locations are hydraulically upgradient from the sites and provide groundwater quality data that are representative of regional conditions (see Figure 3-5, ABB-ES, 1992b).

Comparison to Applicable or Relevant and Appropriate Requirements (ARARs). Groundwater analytical results from samples collected from monitoring wells were compared to the following ARARs:

- Federal primary drinking water standards MCLs (Safe Drinking Water Act [SDWA], 40 CFR part 141), and
- Florida primary (Chapter 62-550.310, Florida Administrative Code [FAC]) and secondary (Chapter 62-550.320, FAC) drinking water standards (FDWS) MCLs, and
- Florida Groundwater Guidance Concentrations, June 1994 (FDEP, 1994).

Comparison of groundwater data to Federal MCLs was completed in accordance with CERCLA Section 121(d)(2)(A)(i). This requires onsite CERCLA remedies to attain standards or levels of control established under the SDWA.

The USEPA also established MCL goals (MCLGs) as ARARs for aquifers and related groundwater used as a potable water supply source. The MCLGs, although recognized by the 1990 NCP as potential ARARs, are nonenforceable health goals. MCLGs are used in cases in which multiple contaminants or pathways of exposure present extraordinary risks to public health. In such cases, USEPA may make a site-specific determination of the more stringent standard. Non-zero MCLGs are considered potential relevant and appropriate requirements for groundwater used as a current or potential source of drinking water. The NCP established that MCLGs equal to zero are not appropriate for setting cleanup goals. Because MCLGs are not enforceable they are never applicable requirements at CERCLA sites.

In addition to Federal and State MCLs, groundwater samples collected at Sites 4 and 7 were compared to Florida petroleum investigation action levels (Chapter 62-770.730, FAC). Only Sites 4 and 7 were evaluated against this criteria because both sites have petroleum-related releases, whereas the contaminants at remaining sites at the facility are composed of nonpetroleum or mixed waste types.

For the purpose of this report, the analytical results of groundwater samples collected from monitoring wells will be compared to the background screening criteria and Federal and State MCLs. Other appropriate ARARs will be considered for comparison to the groundwater analytical results in the NAS Whiting Field RI/FS reports.

4.2 BAT SAMPLING RESULTS. Fourteen BAT groundwater samples (plus one duplicate sample) were collected at the location of seven PCPT soundings in the western part of the facility (Figure 2-1). Tables 4-1 and 4-2 present analytical results for

Table 4-1
Summary Analytical Results for Shallow Bengt-Arne-Torstensson (BAT) Groundwater Samples

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Chemical	Sample Number							
	WP-01-01	WP-02-01	WP-03-01	¹ WP-03-01A	WP-04-01	WP-05-01	WP-06-01	WP-07-01
Methylene chloride	9 J	2 J	2 BJ	-	11 B	3 BJ	1 BJ	-
Acetone	11	9 J	4 J	1 J	9 J	-	-	-
Carbon disulfide	-	4 J	14	10	-	49	24	9 J
1,2-dichloroethene	--	1 J	--	--	--	--	96	-
Trichloroethene	-	9 J	--	--	--	--	-	-
Benzene	--	-	--	-	-	-	340	-
Ethylbenzene	-	-	--	-	-	-	96	-
Xylene	2 J	-	--	-	-	-	64	-
2-Hexanone	-	--	--	-	-	-	2 J	-
Toluene	-	-	--	-	-	-	4 J	-

¹ Duplicate sample.

Notes: All results are expressed in micrograms per liter ($\mu\text{g/l}$).

J = reported concentration is an estimated value.

B = compound also detected in the method blank.

-- = not detected above the instrument detection limit.

Table 4-2
Summary Analytical Results for Deep Bengt-Arne-Torstensson (BAT) Groundwater Samples

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Chemical	Sample Number						
	WP-01-02	WP-02-02	WP-03-02	WP-04-02	WP-05-02	WP-06-02	WP-07-02
Methylene chloride	-	4 J	2 BJ	5 BJ	5 BJ	4 BJ	1 BJ
Acetone	390	-	--	-	-	-	-
Carbon disulfide	-	2 J	--	2 J	18	20	17
Trichloroethene	-	-	4 J	-	-	-	2 J
Benzene	160	-	--	-	-	-	-
1,2-Dichloroethane	-	-	3 J	-	-	-	-
Bromomethane	-	-	--	1 J	-	-	-

Notes: All results are expressed in micrograms per liter ($\mu\text{g/l}$).

- = not detected in sample.

J = reported concentration is an estimated value.

B = compound also detected in the method blank sample.

groundwater samples collected using the BAT sampler from the shallow zone immediately below the groundwater potentiometric surface (depths ranging from 107 to 133 feet bls) and deep zone (depths ranging from 170 to 198 bls), where local water supply wells are completed in the sand-and-gravel aquifer.

Shallow BAT Groundwater Sample Results. Ten VOCs were detected in the groundwater samples collected from the shallow water table zone (ranging from 107 to 134 feet bls) of the sand-and-gravel aquifer. The detected compounds include methylene chloride, acetone, carbon disulfide, 1,2-dichloroethene, trichloroethene, benzene, ethylbenzene, xylenes, 2-hexanone, and toluene.

Acetone and methylene chloride were detected in six of eight and five of eight respectively, shallow groundwater samples. Methylene chloride and acetone were also detected at concentrations less than $6 \mu\text{g/l}$ in the laboratory preparation blanks, trip blanks, rinsate blanks, and field blanks. Both acetone and methylene chloride are common field and laboratory derived contaminants and the presence of these two VOCs in the field and laboratory blanks suggests that both may represent laboratory or sampling artifacts.

Carbon disulfide was detected in six of the eight water table BAT groundwater samples analyzed at concentrations ranging from $4 \mu\text{g/l}$ to $49 \mu\text{g/l}$. A probable source of the carbon disulfide may be the BAT sampling system. The collection vial septum for the BAT sampling assembly is composed of butyl rubber. Carbon disulfide is an intermediate reactant in the rubber manufacturing process and, therefore, could be an artifact.

BAT sample WP-06-01 contained eight VOCs (Table 4-1). Four of the compounds (benzene, ethylbenzene, 2-hexanone, and toluene) were detected only in sample WP-06-01. 1,2-Dichloroethene was detected in samples WP-02-01 and WP-06-01 at concentrations of $1 \mu\text{g/l}$ and $96 \mu\text{g/l}$, respectively. Xylene was detected in samples WP-01-01 and WP-06-01 at concentrations of $2 \mu\text{g/l}$ and $64 \mu\text{g/l}$, respectively.

Deep BAT Sample Results. Seven VOCs were detected in the eight BAT groundwater samples (one sample is a duplicate sample) collected from the deep zone (ranging from 170 to 198 feet bls) of the sand-and-gravel aquifer. The detected compounds include methylene chloride, acetone, carbon disulfide, trichloroethene, benzene, 1,2-dichloroethane, and bromomethane.

Methylene chloride and acetone are likely artifacts of laboratory analysis because of their presence in the associated QC blanks. However, acetone was detected at a concentration of $390 \mu\text{g/l}$ in sample WP-01-02. This concentration exceeded 10 times the highest concentration detected in the field or laboratory blanks and, therefore, is not believed to represent an artifact. In addition, as previously indicated, carbon disulfide is believed to be attributable to the BAT sampling device.

Trichloroethene was detected in two samples, WP-03-02 and WP-07-02, at concentrations of $4 \mu\text{g/l}$ and $2 \mu\text{g/l}$, respectively. Benzene ($160 \mu\text{g/l}$), 1,2-dichloroethane ($3 \mu\text{g/l}$), and bromomethane ($1 \mu\text{g/l}$) were detected as single occurrences in samples WP-01-02, WP-03-02, and WP-04-02, respectively.

4.3 MONITORING WELL GROUNDWATER SAMPLE RESULTS

4.3.1 Field Parameter Results During well purging activities, physical parameters including pH, temperature, specific conductance, and turbidity were measured at each monitoring well location. The groundwater physical parameters for each site are presented in Table 4-3.

The pH values measured for groundwater samples collected from monitoring wells throughout the facility ranged from 4.21 to 11.94 standard units (SUs). Review of the data indicates that three groundwater samples (WHF-9-2, WHF-9-3S, and WHF-11-2) had a pH value greater than the Florida secondary maximum contaminant level (SMCL) range of 6.5 to 8.5 SUs. Four groundwater samples (WHF-9-1, WHF-11-3, WHF-16-3D, and WHF-16-3S) had values within the Florida SMCL range of 6.5 to 8.5 SUs. The remainder of the groundwater samples, including the background samples, had pH values less than the lower Florida SMCL of 6.5 SUs.

The pH values that are within and greater than the Florida SMCL for pH may represent one of four possible conditions. These pH values may be a natural condition, a local geochemical anomaly, the result of contamination, or leakage of alkaline grout around or through the bentonite seal during monitoring well construction.

The temperature of groundwater samples collected throughout the facility ranged from 18.8 to 25 degrees Celsius ($^{\circ}\text{C}$). Specific conductance ranged from 11 to 15,000 micromhos per centimeter ($\mu\text{mhos}/\text{cm}$).

The turbidity measurements of groundwater samples collected throughout the facility ranged from 0.96 to 5,888 nephelometric turbidity units (NTU). In general, the groundwater samples were highly turbid. Only 10 of the monitoring wells (WHF-8-1, WHF-17-1, WHF-18-1, WHF-10-1, WHF-14-1, WHF-15-1, WHF-15-3D, WHF-15-6D, WHF-16-1, and WHF-16-2I) had groundwater samples with turbidity measurements less than 5 NTU, which the State of Florida defines as the acceptable level for a public water supply treatment technique criteria (Chapter 62-555.310, FAC). Although this turbidity level definition is not relevant for raw water from monitoring wells, it does provide a reference level for turbidity measurements.

A statistical analysis of the turbidity data was completed following the evaluation of laboratory analytical results. The statistical analysis suggests that a positive correlation (at the 99.9 percent level of statistical significance) exists between aluminum concentrations and turbidity for unfiltered groundwater samples collected from the North Field Hangar Area (Appendix D). Because the groundwater samples collected were unfiltered, this correlation suggests that the concentrations of metals detected in the groundwater samples are attributable to dissolved and colloidal fractions for inorganics and from the leaching of inorganics from sediment in the sample when the sample was acidified (preserved) at a pH of 2.0 SUs. Therefore, analytical results for inorganic analytes are biased high and may provide false values for the inorganic analytes.

The physical parameters measured at the individual sites are discussed in the following site-specific results section.

Table 4-3
Summary of Field Parameters

Remedial Investigation and Feasibility Study, Phase IIA
Technical Memorandum No. 5, Groundwater Assessment
NAS Whiting Field, Milton, Florida

Monitoring Well Designation	Date Sampled	pH (SU)	Temperature (°C)	Specific Conductance ($\mu\text{mhos}/\text{cm}$)	Turbidity (NTU)
Background Locations					
WHF-BKG-1	10-15-93	4.86	22.7	17	304
WHF-BKG-2	10-14-93	5.78	21.4	73	3,208
WHF-BKG-3	10-14-93	4.91	23	30	348
North Field Hangar Sites					
<u>Site 3</u>					
WHF-3-1D	01-11-94	5.15	21.2	23	21.1
WHF-3-1	01-12-94	4.86	22.8	23	6.7
WHF-3-1S	01-12-94	6.12	22.4	230	301
WHF-3-2D	12-16-93	5.75	21.9	15,000	296
WHF-3-2	01-13-94	4.68	21.3	23	5.4
WHF-3-2S	01-13-94	5.14	18.8	39	1,428
WHF-3-3D	01-11-94	5.6	21.3	32	41.3
WHF-3-3	01-14-94	4.77	22	20	16.5
WHF-3-3S	01-18-94	NA	NA	NA	571
WHF-3-4	01-18-94	6.16	22.8	151	259
WHF-3-7D	01-11-94	4.96	21.8	20	79.1
WHF-3-7I	01-18-94	5.22	22.5	28	77.6
WHF-3-7S	01-19-94	5.98	20	133	272
<u>Site 4</u>					
WHF-4-1	01-19-94	5.1	21.4	37	50.9
<u>Site 32</u>					
WHF-32-1	01-20-94	5.85	21	163	2,200
WHF-32-2	01-19-94	4.8	20	22	140
WHF-32-3	01-19-94	5.01	19.9	49	1,318
WHF-32-4	01-20-94	6.14	19.5	240	765
WHF-32-5	01-20-94	4.57	22	35	4,036
See notes at end of table.					

Table 4-3 (Continued)
Summary of Field Parameters

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Monitoring Well Designation	Date Sampled	pH (SU)	Temperature (°C)	Specific Conductance ($\mu\text{mhos}/\text{cm}$)	Turbidity (NTU)
Midfield Hangar Sites					
<u>Site 5</u>					
WHF-5-OW-1	12-01-93	5.15	22	30	NA
WHF-5-3	12-02-93	5.05	22.3	26	8.86
WHF-5-10D	11-18-93	4.68	22.5	53	32.6
WHF-5-10S	11-19-93	4.56	21.7	51	29.5
WHF-5-8D	01-21-94	6.3	22.4	78	104
WHF-5-8S	11-30-93	4.61	22.8	50	1,641
WHF-5-9D	11-30-93	4.65	22.4	24	190
WHF-5-9S	12-01-93	4.73	22	50	362
<u>Site 6</u>					
WHF-6-1D	11-17-93	4.45	22.1	22	17.1
WHF-6-1S	11-18-93	5.61	22	60	233
WHF-6-3	11-18-93	5.21	22.5	47	1,069
<u>Site 33</u>					
WHF-33-1	1-10-94	5.15	21	47	1,156
WHF-33-2	12-14-93	5.22	22.4	68	1,085
WHF-33-3	1-10-94	4.97	21.5	49	1,084
WHF-33-4	12-14-93	4.5	20.3	50	832
WHF-33-5	12-14-93	4.75	20.1	28	1,984
South Field Hangar Sites					
<u>Site 7</u>					
WHF-7-1	12-02-93	6.2	22	355	325
<u>Site 8</u>					
WHF-8-1	12-09-93	4.83	23.2	16	2
<u>Site 29</u>					
WHF-29-1	12-02-93	4.74	22.7	69	2,598
WHF-29-2	12-08-93	4.59	22.5	68	5,105
WHF-29-3	12-08-93	5.31	24.5	63	654
WHF-29-4	12-08-93	4.82	22	61	632
WHF-29-5	12-02-93	4.68	22.1	59	584

See notes at end of table.

Table 4-3 (Continued)
Summary of Field Parameters

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Monitoring Well Designation	Date Sampled	pH (SU)	Temperature (°C)	Specific Conductance ($\mu\text{mhos}/\text{cm}$)	Turbidity (NTU)
South Field Hangar Sites (Continued)					
<u>Site 30</u>					
WHF-30-2	12-09-93	4.54	22.9	38	32.1
WHF-30-3	12-10-93	4.88	23.2	53	632
WHF-30-4	12-13-93	5.15	22	61	442
WHF-30-5	12-09-93	5.44	23.2	41	526
Northwest Disposal and Crash Crew Training					
<u>Sites 1 and 2</u>					
WHF-1-1	10-18-93	5.03	23	20	3.92
WHF-1-1S	10-18-93	5.04	23	30	374
WHF-1-2	10-19-93	4.58	22	30	5,888
WHF-1-3	10-15-93	4.74	22.4	21	1,390
WHF-2-1	10-19-93	4.65	25	30	1,208
<u>Site 17</u>					
WHF-17-1	10-19-93	4.84	24	19	2.58
WHF-17-1S	10-20-93	5.28	23	23	509
WHF-17-2S	10-20-93	5.13	25	20	257
WHF-17-3	10-21-93	4.87	22.1	21.5	1,241
<u>Site 18</u>					
WHF-18-1	10-21-93	4.77	24.3	26.6	2.97
WHF-18-2S	10-21-93	4.45	23.8	29	1,370
WHF-18-3	10-25-93	4.86	22	18	1,192
Southeast Disposal Area					
<u>Site 9</u>					
WHF-9-1	10-26-93	7.99	21.2	33	12.7
WHF-9-2	10-26-93	11.60	24	1,300	27.7
WHF-9-3S	10-27-93	11.30	21.2	345	612
<u>Site 10</u>					
WHF-10-1	10-27-93	5.07	22	19	0.96
WHF-10-2	10-27-93	5.25	22	15	41
See notes at end of table.					

Table 4-3 (Continued)
Summary of Field Parameters

Remedial Investigation and Feasibility Study, Phase II A
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Monitoring Well Designation	Date Sampled	pH (SU)	Temperature - (°C)	Specific Conductance ($\mu\text{mhos}/\text{cm}$)	Turbidity (NTU)
Southeast Disposal Area (Continued)					
<u>Site 11</u>					
WHF-11-1	10-29-93	6.04	19.9	111	2.77
WHF-11-1S	10-28-93	5.70	NA	NA	607
WHF-11-2	10-28-93	11.90	20.8	2,060	168
WHF-11-3	10-28-93	7.12	19	37	799
<u>Site 12</u>					
WHF-12-1	11-01-93	4.88	19.6	14	14.6
<u>Site 13</u>					
WHF-13-1	11-02-93	5.61	21.2	135	6.57
WHF-13-1S	11-02-93	6.00	19.5	185	864
WHF-13-2	11-02-93	5.90	23.9	40	19.3
<u>Site 14</u>					
WHF-14-1	11-03-93	4.90	21.6	20	2.59
WHF-14-2	11-02-93	4.91	21.3	20	103.4
Southwest Disposal Area					
<u>Site 15</u>					
WHF-15-1	12-03-93	4.87	22.5	33	1.81
WHF-15-2D	11-09-93	5.67	22.1	34	17.1
WHF-15-2I	11-09-93	4.92	21.1	22	6.53
WHF-15-2S	11-09-93	5.39	21.5	40	1,348
WHF-15-3D	11-03-93	6.15	22.9	81	1.79
WHF-15-3I	11-03-93	4.80	23.4	20	10.6
WHF-15-3S	11-04-93	5.15	22.4	27	1,025
WHF-15-4	11-03-93	6.07	22.7	36.5	534
WHF-15-5	12-03-93	4.94	24.8	34	44.2
WHF-15-6D	11-10-93	5.04	22.1	24	1.05
WHF-15-6S	11-10-93	6.06	22.2	270	786
See notes at end of table.					

Table 4-3 (Continued)
Summary of Field Parameters

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Monitoring Well Designation	Date Sampled	pH (SU)	Temperature (°C)	Specific Conductance ($\mu\text{mhos}/\text{cm}$)	Turbidity (NTU)
Southwest Disposal Area (Continued)					
<u>Site 16</u>					
WHF-16-1	11-16-93	4.50	21.6	29	1.58
WHF-16-2I	12-06-93	5.38	22	38	0.98
WHF-16-2	11-10-93	5.25	22.7	44	5.28
WHF-16-2S	12-6-93	4.73	19.8	29	1,381
WHF-16-3D	11-11-93	6.66	22	112	114
WHF-16-3I	11-12-93	4.93	21.2	44	42.3
WHF-16-3II	11-12-93	5.42	21.1	40.5	2,528
WHF-16-3S	11-15-93	6.51	23	429	479
WHF-16-4D	11-15-93	5.70	22.7	42	46.6
WHF-16-4II	11-16-93	5.01	22	28	10.7
WHF-16-4S	11-16-93	5.85	22	490	320
WHF-16-5	11-17-93	4.21	20.8	11	3.85
Notes: SU = standard unit. °C = degrees Celsius. $\mu\text{mhos}/\text{cm}$ = micromhos per centimeter. ppm = parts per million. NTU = nephelometric turbidity unit. NA = not applicable.					

4.3.2 Background Groundwater Analytical Results Table 4-4 summarizes the analytical results and ARARs for organic and inorganic analytes detected in the background groundwater samples collected from monitoring wells WHF-BKG-1, WHF-BKG-2, and WHF-BKG-3.

The physical parameters measured for the background groundwater samples are summarized in Table 4-3. The pH of the background groundwater samples ranged from 4.86 to 5.78 SUs. All pH values were below the Florida SMCL lower limit of 6.5 SUs. Temperature measurements ranged from 21.4 to 23 °C and the specific conductance ranged from 17 to 73 $\mu\text{mhos}/\text{cm}$. Turbidity measurements in the background groundwater samples ranged from 304 to 3,208 NTUs.

Two VOCs (benzene and toluene) and one pesticide compound (beta-benzene hexachloride) were the only organic compounds detected in the background groundwater samples. Benzene and toluene were detected at concentrations of 4 $\mu\text{g}/\ell$ and 13 $\mu\text{g}/\ell$, respectively, in the groundwater sample from monitoring well WHF-BKG-3. The pesticide compound beta-benzene hexachloride was detected in the groundwater sample from monitoring well WHF-BKG-2 at a concentration of 0.02 $\mu\text{g}/\ell$. Benzene was the only organic compound detected at a concentration that exceeded ARARs. The State MCL for benzene is 1 $\mu\text{g}/\ell$. Neither of the VOCs or the pesticide compound are naturally occurring, and a source has not been determined.

Nineteen inorganic analytes were detected in the background groundwater samples. Comparison of detected inorganic analytes to Federal and State MCLs indicates that all three background groundwater samples contained concentrations of aluminum, chromium, iron, and manganese at concentrations exceeding the Federal and State Primary or Secondary MCLs. In addition, concentrations of lead (19.7 $\mu\text{g}/\ell$) and nickel (724 $\mu\text{g}/\ell$), which occurred as single detections in samples from monitoring wells WHF-BKG-1 and WHF-BKG-3, respectively, exceeded the Federal and State MCLs of 15 $\mu\text{g}/\ell$ (treatment technique criteria) and 100 $\mu\text{g}/\ell$, respectively. Table 4-4 provides the concentrations of detected analytes, the arithmetic mean of detected analytes, the value of 2 times the arithmetic mean, and applicable regulatory criteria.

4.3.3 Site-specific Groundwater Analytical Results

4.3.3.1 Industrial Area Sites The results of the chemical analyses of groundwater samples collected from industrial area sites are presented and assessed according to three RI/FS site groupings: North Field Area sites (Sites 3, 4, and 32), Midfield Area sites (Sites 5, 6, and 33), and the South Field Area sites (Sites 7, 29, and 30).

North Field Industrial Area. This site grouping is comprised of Site 3, Underground Waste Solvent Area; Site 4, North AVGAS Tank Sludge Disposal Area (UST Site 1467); and Site 32, North Field Maintenance Hangar Area.

Site 3, Underground Waste Solvent Storage Area. Groundwater samples were collected from 13 monitoring wells including: five shallow monitoring wells, four intermediate monitoring wells, and four deep monitoring wells (Figure 2-2). Table 4-5 presents a summary of the organic compounds detected in the groundwater samples collected at Site 3.

Table 4-4

**Remedial Investigation and Feasibility Study, Phase II A
Technical Memorandum No. 5, Groundwater Assessment
NAS Whiting Field, Milton, Florida**

Well Identifier:	Shallow Monitoring Wells			Arithmetic Mean	Background Screening Criteria	Federal/State Standards
	WHF-BKG-1	WHF-BKG-2	WHF-BKG-3			
ABB-ES Sample Identifier:	WHF-BKG-1	WHF-BKG-2	WHF-BKG-3			
Collect Date:	15-OCT-93	14-OCT-93	14-OCT-93			
Laboratory Sample No.:	90175001	90174005	90174004			
Volatile Organic Compounds (µg/l)						
Benzene	--	--	4 J	4	8	¹ 5/ ¹ 1
Toluene	--	--	13	13	26	¹ 1,000/ ¹ 1,000, ² 40
Semivolatile Organic Compounds (µg/l)						
None detected						
Pesticides and Polychlorinated Biphenyls (µg/l)						
Beta-benzene hexachloride (BHC)	--	0.02 J	--	0.25	0.04	NA/ ³ 0.1
Inorganic Analytes (µg/l)						
Aluminum	47,100	27,400	5,540	26,680	53,360	² 200/ ² 200
Barium	94.2 J	60.4 J	35.6 J	63.4	126.8	¹ 2,000/ ¹ 2,000
Beryllium	2.5 J	2.1 J	0.75 J	1.8	3.6	¹ 4/ ¹ 4
Calcium	3,440 J	2,470 J	1,150 J	2,353	4,706	NA/NA
Chromium	148	110	1,050	436	872	¹ 100/ ¹ 100
Cobalt	6.7 J	9.4 J	14.9 J	10.4	20.7	NA/NA
Copper	51.9	28.8	20.6 J	33.8	67.6	⁴ 1,300, ² 1,000/ ² 1,000

Table 4-4 (Continued)
Summary Analytical Results for Background Groundwater Samples

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Well Identifier:	Shallow Monitoring Wells			Arithmetic Mean	Background Screening Criteria	Federal/State Standards
	WHF-BKG-1	WHF-BKG-2	WHF-BKG-3			
ABB-ES Sample Identifier:	WHF-BKG-1	WHF-BKG-2	WHF-BKG-3			
Collect Date:	15-OCT-93	14-OCT-93	14-OCT-93			
Laboratory Sample No.:	90175001	90174005	90174004			
Inorganic Analytes ($\mu\text{g/l}$) (Continued)						
Iron	64,800	42,200	13,100	40,033	80,066	² 300/ ² 300
Lead	19.7	7.9	3.2	10.3	20.6	⁴ TT 15/ ¹ 15
Magnesium	1,070 J	2,520 J	794 J	1,461	2,922	NA/NA
Manganese	143	65.4	76.6	94.3	188	² 50/ ² 50
Mercury	0.16 J	--	--	0.16	0.32	¹ 2/ ¹ 2
Nickel	20 J	--	724	372	744	¹ 100/ ¹ 100
Potassium	1,830 J	23,100	975 J	8,635	17,270	NA/NA
Selenium	--	2 J	--	2	4	¹ 50/ ¹ 50
Sodium	1,240 J	5,260	2,110 J	2,870	5,740	NA/ ¹ 160,000
Vanadium	277	176	49.7 J	167	335	NA/ ³ 49
Zinc	148	40.8	21.1	70	140	⁴ 5,000/ ² 5,000
Cyanide	2.1 J	--	--	2.1	4.2	¹ 200/ ¹ 200

¹ Primary maximum contaminant level (MCL).
² Secondary MCL.
³ Groundwater Guidance Concentration.
⁴ Federal Action Level.

Notes: ABB-ES = ABB Environmental Services.
 MCLs = maximum contaminant levels.
 $\mu\text{g/l}$ = micrograms per liter.
 TT = treatment technique.
 ■ = concentration of analyte is equal to or greater than Federal and/or State maximum contaminant levels.
 -- = the analyte was not detected above instrument detection limits.
 J = estimated quantity.
 NA = no applicable standard currently exists.

Table 4-5
Summary Analytical Results for Organic Compounds
Detected in Site 3 Groundwater Samples

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Well Identifier:	Shallow Monitoring Wells					Intermediate Monitoring Wells		Background Screening Criteria	Federal/State Standards
	WHF-3-1S	WHF-3-2S	WHF-3-3S	WHF-3-4	WHF-3-7S	WHF3-1	WHF3-1A		
ABB-ES Sample Identifier:	WHF3-1B	WHF3-2B	WHF3-3B	WHF3-4	WHF3-7B	WHF3-1	WHF3-1 DUP		
Collect Date:	12-JAN-94	13-JAN-94	18-JAN-94	20-JAN-94	19-JAN-94	12-JAN-94	12-JAN-94		
Laboratory Sample No.:	90330002	90333002	90337003	90353005	90343001	90331001	90331002		
Volatile Organic Compounds ($\mu\text{g/l}$)									
Chloromethane	2/-	--	--	--	--	--	--	ND	NA/ ³ 2.7
Acetone	380 J/-	--	--	--	--	--	--	ND	NA/ ³ 700
1,1-Dichloroethene	2/-	--	1 J	--	--	--	--	ND	¹ 7/ ¹ 7
1,1-Dichloroethane	2/-	--	2 J	--	--	--	--	ND	NA/ ^{3,4} 700
1,2-Dichloroethene (total)	⁶ 230 J/240 J	--	--	34 J	⁶ 190 J	4 J	3 J	ND	^{1,4} 70/ ^{1,4} 70
Chloroform	2/-	--	4 J	--	--	--	--	ND	¹ 100/ ³ 6
1,1,1-Trichloroethane	2/-	--	4 J	--	--	--	--	ND	¹ 200/ ¹ 200
Trichloroethylene	⁶ 74 J/63 J	16	76	⁶ 570/250 J	220 J	53	52	ND	¹ 5/ ¹ 3
Tetrachloroethylene	2/-	--	3 J	--	--	--	--	ND	¹ 5/ ¹ 3
Benzene	⁶ 3,600/3,900	--	3 J	⁶ 4,500/4,500	4,100	3 J	2 J	8	¹ 5/ ¹ 1
Toluene	⁶ 7,230/7,200	--	2 J	⁶ 15,000/15,000	1,100	41	39	26	¹ 1,000/ ¹ 1,000, ² 40
Ethylbenzene	⁶ 680/710	--	--	⁶ 2,800/1,800	1,100	3 J	3 J	ND	¹ 700/ ¹ 700, ² 30
Xylenes (total)f	⁶ 1,700/1,700	--	--	⁶ 5,300/3,000	--	6 J	6 J	ND	¹ 10,000/ ¹ 10,000, ² 20
Semivolatile Organic Compounds ($\mu\text{g/l}$)									
Phenol	27 J	--	--	26	39	2/-	--	ND	NA/ ³ 10
2-Methylphenol	35	--	--	30	5 J	2/-	--	ND	NA/ ³ 350
4-Methylphenol	20	--	--	34	10	2/-	--	ND	NA/ ³ 35
Naphthalene	4 J	--	--	7 J	5 J	2/-	--	ND	NA/ ³ 6.8
2-Methylnaphthalene	1 J	--	--	2 J	1 J	2/-	--	ND	NA/NA
Carbazole	2 J	--	--	--	1 J	2/-	--	ND	NA/ ³ 7.5
bis(2-Ethylhexyl)phthalate	2	--	--	11	3 J	⁶ 490 J/490 J	--	ND	¹ 6/ ¹ 6
Pesticides and Polychlorinated Biphenyls ($\mu\text{g/l}$)									
Heptachlor epoxide	⁶ R	--	0.28	--	--	--	--	ND	¹ 0.2/ ¹ 0.2

See notes at end of table.

Table 4-5 (Continued)
Summary Analytical Results for Organic Compounds
Detected in Site 3 Groundwater Samples

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Well Identifier:	Intermediate Monitoring Wells			Deep Monitoring Wells				Background Screening Criteria	Federal/State Standards
	WHF-3-2	WHF-3-3	WHF-3-7I	WHF-3-1D	WHF-3-2D	WHF-3-3D	WHF-3-7D		
ABB-ES Sample Identifier:	WHF3-2	WHF3-3	WHF3-7C	WHF3-1D	WHF3-2D	WHF3-3D	WHF3-7D		
Collect Date:	13-JAN-94	14-JAN-94	18-JAN-94	11-JAN-94	16-DEC-93	11-JAN-94	11-JAN-94		
Laboratory Sample No.:	90333001	90334002	90337004	90325001	90299001	90325002	90325003		
Volatile Organic Compounds ($\mu\text{g/l}$)									
Chloromethane	-	-	-	-	-	-	2 J	ND	NA/ ³ 2.7
Acetone	-	-	16	-	-	-	-	ND	NA/ ³ 700
1,1-Dichloroethene	-	-	-	-	-	-	-	ND	¹ 7/ ¹ 7
1,1-Dichloroethane	-	-	-	-	-	-	-	ND	NA/ ³ 700
1,2-Dichloroethene (total)	-	-	6 J	-	-	-	-	ND	^{1,4} 70/ ^{1,4} 70
Chloroform	-	-	-	-	-	-	-	ND	¹ 100/ ³ 6
1,1,1-Trichloroethane	-	-	-	-	-	-	-	ND	¹ 200/ ² 00
Trichloroethene	-	2 J	79	-	-	-	1 J	ND	¹ 5/ ¹ 3
Tetrachloroethene	-	-	-	-	-	-	-	ND	¹ 5/ ¹ 3
Benzene	1 J	-	14	-	-	-	-	8	¹ 5/ ¹ 1
Toluene	2 J	-	130	-	-	-	1 J	26	¹ 1,000/ ¹ 1,000, ² 40
Ethylbenzene	-	-	9 J	-	-	-	-	ND	¹ 700/ ¹ 700, ² 30
Xylenes (total)	-	-	26	-	-	-	-	ND	¹ 10,000/ ¹ 10,000, ² 20
Semivolatile Organic Compounds ($\mu\text{g/l}$)									
Phenol	-	-	-	-	-	-	-	ND	NA/ ³ 10
2-Methylphenol	-	-	-	-	-	-	-	ND	NA/ ³ 35
4-Methylphenol	-	-	-	-	-	-	-	ND	NA/ ³ 35
Naphthalene	-	-	-	-	-	-	-	ND	NA/ ³ 6.8
2-Methylnaphthalene	-	-	-	-	-	-	-	ND	NA/NA
Carbazole	-	-	-	-	-	-	-	ND	NA/ ³ 7.5
bis(2-Ethylhexyl)phthalate	-	2/3 J	6220/220	2 J	16	7 J	2 J	ND	¹ 6/ ¹ 6

See notes at end of table.

Table 4-5 (Continued)
Summary Analytical Results for Organic Compounds
Detected in Site 3 Groundwater Samples

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Well Identifier:	Intermediate Monitoring Wells			Deep Monitoring Wells				Background Screening Criteria	Federal/State MCLs
	WHF-3-2	WHF-3-3	WHF-3-7I	WHF-3-1D	WHF-3-2D	WHF-3-3D	WHF-3-7D		
ABB-ES Sample Identifier:	WHF3-2	WHF3-3	WHF3-7C	WHF3-1D	WHF3-2D	WHF3-3D	WHF3-7D		
Collect Date:	13-JAN-94	14-JAN-94	18-JAN-94	11-JAN-94	16-DEC-93	11-JAN-94	11-JAN-94		
Laboratory Sample No.:	90333001	90334002	90337004	90325001	90299001	90325002	90325003		
Pesticides and Polychlorinated Biphenyl ($\mu\text{g/l}$)									
Heptachlor epoxide	--	--	--	--	--	--	--	ND	¹ 0.2/ ¹ 0.2
¹ Primary maximum contaminant level (MCL).									
² Secondary MCL.									
³ Florida Groundwater Guidance concentration.									
⁴ cis-1,2-Dichloroethene was used for comparison.									
⁵ Second value from reanalysis of diluted sample.									
⁶ All pesticides and PCBs results for this sample were rejected during the data validation process due to poor recoveries as a result of column interference.									
Notes: ABB-ES = ABB Environmental Services, Inc. MCLs = maximum contaminant levels. $\mu\text{g/l}$ = micrograms per liter. -- = compound was not detected above instrument detection limits.	ND = compound not detected in background sample. NA = no applicable standard currently exists. J = estimated concentration.  = concentration meets or exceeds Primary or Secondary Federal or State maximum contaminant levels.								

Volatile Organic Compounds. Thirteen VOCs, including chloromethane, acetone, 1,1-dichloroethene, 1,1-dichloroethane, 1,2-dichloroethene (total), chloroform, 1,1,1-trichloroethane, trichloroethene, tetrachloroethene, and total BTEX were detected in groundwater samples collected from shallow, intermediate, and deep monitoring wells at Site 3.

Shallow Monitoring Wells. Twelve of the 13 VOCs (excluding chloromethane) were detected in the shallow groundwater samples. Trichloroethene was detected in each of the shallow groundwater samples at concentrations ranging from 16 to 570 $\mu\text{g/l}$. Detected concentrations of BTEX (total values) ranged from 5 to 13,510 $\mu\text{g/l}$. Acetone, 1,1-dichloroethene, 1,1-dichloroethane, chloroform, and 1,1,1-trichloroethane were detected as single occurrences. 1,2-Dichloroethene (total) was detected in three of the five groundwater samples and a duplicate sample at concentrations ranging from 34 to 240 $\mu\text{g/l}$.

Detected concentrations of seven of the VOCs, including: 1,2-dichloroethene (total), trichloroethene, tetrachloroethene, benzene, toluene, ethylbenzene, and xylene, met or exceeded the Federal and State Primary MCLs. 1,2-Dichloroethene was detected in groundwater samples from monitoring wells WHF-3-1S and WHF-3-7S at concentrations exceeding the Federal and State Primary MCLs of 70 $\mu\text{g/l}$. Trichloroethene was detected in samples collected from each of the shallow monitoring wells at concentrations exceeding the Federal and State Primary MCLs of 5 and 3 $\mu\text{g/l}$, respectively. Tetrachloroethene was detected as a single occurrence in a groundwater sample from monitoring well WHF-3-3S at a concentration meeting or exceeding the Federal and State Primary MCLs of 5 and 3 $\mu\text{g/l}$, respectively. Benzene was detected in groundwater samples from monitoring wells WHF-3-1S, WHF-3-3S, WHF-3-4, and WHF-3-7S at concentrations exceeding the Federal and State Primary MCLs of 5 and 1 $\mu\text{g/l}$, respectively. Toluene and ethylbenzene were detected in groundwater samples from three of the shallow wells (WHF-3-1S, WHF-3-4, and WHF-3-7S) at concentrations exceeding the Federal and State Primary MCLs of 1,000 and 700 $\mu\text{g/l}$, respectively. Detected concentrations of xylene in two samples exceeded the State Secondary MCL of 20 $\mu\text{g/l}$.

Intermediate Depth Monitoring Wells. Seven VOCs (acetone, 1,2-dichloroethene, trichloroethene, benzene, toluene, ethylbenzene, and xylenes) were detected in the groundwater samples collected from intermediate depth monitoring wells at Site 3. Seven of the VOCs detected were detected in the groundwater sample from monitoring well WHF-3-7I and six of the seven VOCs (excluding acetone) were detected in the groundwater sample and duplicate sample from monitoring well WHF-3-1.

Trichloroethene and benzene were the only VOCs detected in the groundwater samples collected from intermediate depth monitoring wells at concentrations exceeding the Federal and State Primary MCLs. Trichloroethene was detected in groundwater samples from monitoring wells WHF-3-1 and WHF-3-7I at concentrations exceeding the Federal and State Primary MCLs of 5 and 3 $\mu\text{g/l}$, respectively. Benzene was detected in groundwater samples from monitoring wells WHF-3-1, WHF-3-2, and WHF-3-7I at concentrations exceeding the Federal and State Primary MCLs of 5 and 1 $\mu\text{g/l}$, respectively. Toluene and xylene were detected in single groundwater samples (WHF-3-1 and WHF-3-7I respectively) at concentrations exceeding the Florida Secondary MCL of 40 $\mu\text{g/l}$ and 20 $\mu\text{g/l}$ respectively.

Deep Monitoring Wells. Three VOCs (chloromethane, trichloroethene, and toluene) were detected in groundwater samples collected from deep monitoring wells at Site 3. None of the compound concentrations were detected above Federal or State MCLs.

Semivolatile Organic Compounds. Seven SVOCs, including phenol, 2-methylphenol, 4-methylphenol, naphthalene, 2-methylnaphthalene, carbazole, and bis(2-ethylhexyl)phthalate, were detected in groundwater samples collected from monitoring wells at Site 3.

Shallow Monitoring Wells. Seven SVOCs were detected in the groundwater sample collected from monitoring well WHF-3-7S. Samples WHF-3-1S and WHF-3-4 both contained six of the seven detected compounds. Bis(2-ethylhexyl)phthalate was not detected in the sample from monitoring well WHF-3-1S, and carbazole was not detected in the sample from monitoring well WHF-3-4. No SVOCs were detected in the groundwater samples from monitoring wells WHF-3-2S and WHF-3-3S.

Bis(2-ethylhexyl)phthalate was the only SVOC detected at concentrations exceeding the Federal and State Primary MCL of 6 $\mu\text{g/l}$. The groundwater sample collected from the shallow monitoring well WHF-3-4 contained bis(2-ethylhexyl)phthalate at 11 $\mu\text{g/l}$. Detected concentrations of phenol in three samples (WHF-3-1S, WHF-3-4, and WHF-3-7S) and naphthalene in one sample (WHF-3-4) exceeded the Florida Groundwater Guidance concentration values.

Intermediate and Deep Monitoring Wells. Bis(2-ethylhexyl) phthalate was the only SVOC detected in groundwater samples collected from intermediate and deep monitoring wells at Site 3. Groundwater samples collected from four of the monitoring wells (WHF-3-1, WHF-3-7I, WHF-3-2D, and WHF-3-3D) contained bis(2-ethylhexyl)phthalate at concentrations exceeding the Federal and State Primary MCL of 6 $\mu\text{g/l}$.

Pesticides and PCBs. The pesticide compound, heptachlor epoxide, was the only pesticide or PCB compound detected in groundwater samples at Site 3.

Shallow Monitoring Wells. Heptachlor epoxide was detected at a concentration of 0.28 $\mu\text{g/l}$ in the groundwater sample collected from shallow monitoring well WHF-3-3S. The concentration exceeded the Federal and State Primary MCL of 0.2 $\mu\text{g/l}$.

Intermediate and Deep Monitoring Wells. No pesticide or PCB compounds were detected in groundwater samples from the intermediate or deep monitoring wells at the site.

Inorganic Analytes. Table 4-6 summarizes the inorganic analytical results for groundwater samples collected at Site 3. Twenty-one inorganic analytes were detected in the groundwater samples collected from the Site 3 monitoring wells.

Shallow Monitoring Wells. Twenty inorganic analytes were detected in the groundwater samples collected from the shallow monitoring wells at Site 3. Eight inorganic analytes, including arsenic, cadmium, calcium, lead, magnesium, selenium, silver, and sodium, were detected in groundwater samples collected from shallow monitoring wells at concentrations exceeding the background screening criteria.

Six inorganic analytes were detected at concentrations exceeding the Federal and State Primary or Secondary MCLs in groundwater samples from Site 3. Individual analytes that exceeded MCLs include aluminum, cadmium, iron, lead, manganese, and mercury.

Table 4-6
Summary Analytical Results for Inorganic Compounds
Detected in Site 3 Groundwater Samples

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Well Identifier:	Shallow Monitoring Wells					Intermediate Monitoring Wells		Background Screening Criteria	Federal/State MCLs
	WHF-3-1S	WHF-3-2S	WHF-3-3S	WHF-3-4	WHF-3-7S	WHF-3-1	WHF-3-1 DUP		
ABB-ES Sample Identifier:	WHF3-1B	WHF3-2B	WHF3-3B	WHF3-4	WHF3-7B	WHF3-1	WHF3-1A		
Collect Date:	12-JAN-94	13-JAN-94	18-JAN-94	20-JAN-94	19-JAN-94	12-JAN-94	12-JAN-94		
Laboratory Sample No.:	90330002	90333002	90337003	90353005	90343001	90331001	90331002		
Metals and Cyanide ($\mu\text{g/l}$)									
Aluminum	195 J	10,800	3,230	779	1,370	--	--	53,360	² 200/ ² 200
Arsenic	16.3	--	--	6.1 J	3.3 J	--	--	ND	¹ 50/ ¹ 50
Barium	66.8 J	47.8 J	59.6 J	80.7 J	56.7 J	37.4 J	37.9 J	126.8	¹ 2,000/ ¹ 2,000
Beryllium	--	0.86 J	--	--	--	--	--	3.6	¹ 4/ ¹ 4
Cadmium	13.2	7	3.9 J	5.3	--	17.8	18.8	ND	¹ 5/ ¹ 5
Calcium	10,900	3,460 J	1,500 J	13,300	5,080	6,190	6,410	4,702	NA/NA
Chromium	--	82.4	22	9.1 J	4.5 J	--	--	872	100/ ¹ 100
Copper	3 J	23.6 J	10.4 J	2.5 J	--	--	--	67.6	TT 1,300 ² 1,000/ ² 1,000
Iron	31,100	57,300	15,800	24,500	23,100	368	364	80,066	² 300/ ² 300
Lead	201	6.6	2.3 J	126	27.8	14.8	17.6	20.6	TT 15/ ¹ 15
Magnesium	7,830	1,140 J	1,330 J	4,650 J	3,430 J	722 J	715 J	2,922	NA/NA
Manganese	99.8	39.1	45.7	96.4	71.6	33.5	33.3	188	² 50/ ² 50
Mercury	--	19.8	0.16 J	--	--	--	--	0.32	¹ 2/ ¹ 2
Nickel	9.9 J	26.4 J	--	--	--	--	--	744	100/ ¹ 100
Potassium	7,090	3,710 J	822 J	3,040 J	1,780 J	3,900 J	4,660 J	17,270	NA/NA
Selenium	--	--	--	2.6 J	10.3	--	--	4	¹ 50/ ¹ 50
Silver	--	3.2 J	--	--	--	--	--	ND	² 100/ ² 100
Sodium	6,760	2,860 J	2,620 J	4,070 J	4,360 J	4,310 J	4,640 J	5,740	NA/ ¹ 160,000
Vanadium	--	114	36.4 J	4.6 J	6.5 J	--	--	335	NA/ ³ 49
Zinc	14.8 J	35.4	9.4 J	8.8 J	3.6 J	--	--	140	¹ 5,000/ ¹ 5,000
Cyanide	--	--	--	--	--	--	--	4.2	¹ 200/ ¹ 200

See notes at end of table.

Table 4-6 (Continued)
Summary Analytical Results for Inorganic Compounds
Detected in Site 3 Groundwater Samples

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Well Identifier: ABB-ES Sample Identifier:	Intermediate Monitoring Wells				Deep Monitoring Wells			Background Screening Criteria	Federal/State MCLs
	WHF-3-2	WHF-3-3	WHF-3-7I	WHF-3-1D	WHF-3-2D	WHF-3-3D	WHF-3-7D		
Collect Date:	13-JAN-94	14-JAN-94	18-JAN-94	11-JAN-94	16-DEC-93	11-JAN-94	11-JAN-94		
Laboratory Sample No.:	90333001	90334002	90337004	90325001	90299001	90325002	90325003		
Metals and Cyanide ($\mu\text{g/l}$)									
Aluminum	76.1 J	328	87.7 J	49.8 J	3,570 J	455	1,400	53,360	² 200/ ² 200
Arsenic	-	-	-	-	-	-	-	ND	¹ 50/ ¹ 50
Barium	27.9 J	25.3 J	27.2 J	10.8 J	26.4 J	22.6 J	22.6 J	126.8	¹ 2,000/ ¹ 2,000
Beryllium	-	-	-	-	-	-	-	3.6	¹ 4/ ¹ 4
Cadmium	34.4	29.9	-	5.7	6.2	3.6 J	10.9	ND	¹ 5/ ¹ 5
Calcium	1,810 J	967 J	2,520 J	2,550 J	2,750 J	4,750 J	1,260 J	4,706	NA/NA
Chromium	-	-	-	4.6 J	8.1 J	4.2 J	-	872	100/ ¹ 100
Copper	-	-	-	-	-	-	2.9 J	67.6	TT 1,300 ² 1,000/ ² 1,000
Iron	112	293	258	79.9 J	3,600 J	630	2,350	80,066	² 300/ ² 300
Lead	--	2.9 J	1.9 J	--	2.8 J	--	1.3 J	20.6	TT 15/ ¹ 15
Magnesium	731 J	682 J	619 J	364 J	533 J	495 J	659 J	2,922	NA/NA
Manganese	5.6 J	9.8 J	17.8	19.6	55	40.2	16.9	188	² 50/ ² 50
Mercury	-	-	-	-	-	-	-	0.32	¹ 2/ ¹ 2
Nickel	-	-	-	-	-	-	-	744	¹ 100/ ¹ 100
Potassium	2,460 J	2,110 J	13,900	2,480 J	--	2,140 J	2,180 J	17,270	NA/NA
Selenium	-	-	-	-	-	-	-	4	¹ 50/ ¹ 50
Silver	--	--	--	--	--	--	--	ND	² 100/ ¹ 100
Sodium	3,350 J	2,020 J	3,080 J	2,890 J	6,070	4,690 J	2,460 J	5,740	NA/ ¹ 160,000
Vanadium	-	-	-	-	6.9 J	--	3.2 J	335	NA/ ³ 49

See notes at end of table.

Table 4-6 (Continued)
Summary Analytical Results for Inorganic Compounds
Detected in Site 3 Groundwater Samples

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Well Identifier:	Intermediate Monitoring Wells				Deep Monitoring Wells				Background Screening Criteria	Federal/State MCLs
	WHF-3-2	WHF-3-3	WHF-3-7I	WHF-3-1D	WHF-3-2D	WHF-3-3D	WHF-3-7D			
ABB-ES Sample Identifier:	WHF3-2	WHF3-3	WHF3-7C	WHF3-1D	WHF3-2D	WHF3-3D	WHF3-7D			
Collect Date:	13-JAN-94	14-JAN-94	18-JAN-94	11-JAN-94	16-DEC-93	11-JAN-94	11-JAN-94			
Laboratory Sample No.:	90333001	90334002	90337004	90325001	90299001	90325002	90325003			
Zinc	10.5 J	7.8 J	4.1 J	11.8 J	--	8.2 J	10.8 J	140	¹ 5,000/ ¹ 5,000	
Cyanide	--	--	--	1.9 J	--	2.4 J	--	4.2	¹ 200/ ¹ 200	

¹ Primary maximum contaminant level (MCL).
² Secondary MCL.
³ Florida Groundwater Guidance concentration.

Notes: ABB-ES = ABB Environmental Services, Inc.
 MCLs = maximum contaminant levels.
 $\mu\text{g/l}$ = micrograms per liter.
 J = estimated concentration.
■ = concentration meets or exceeds Federal or State Primary or Secondary MCLs
 -- = compound was not detected above instrument detection limits.
 ND = compound not detected in background sample.
 TT = treatment techniques.
 NA = no applicable standard currently exists.

Intermediate Depth Monitoring Wells. Eleven inorganic analytes were detected in the groundwater samples collected from the intermediate depth monitoring wells. Two of the inorganic analytes (cadmium and calcium) were detected at concentrations exceeding the background screening criteria. Four inorganic analytes, including aluminum, cadmium, iron, and lead, were detected at concentrations exceeding Federal and State Primary or Secondary MCLs. All four of the compounds were also detected in the shallow groundwater samples at concentrations exceeding the MCLs.

Deep Monitoring Wells. Fifteen inorganic analytes were detected in the deep monitoring wells. Concentrations of three of the analytes (cadmium, calcium, and sodium) were present at concentrations exceeding the background screening criteria. Four inorganic analytes, including aluminum, cadmium, iron, and manganese, were detected at concentrations exceeding Federal and State Primary and Secondary MCLs in groundwater samples from deep monitoring wells.

Field Parameter Results. Field parameter results are presented in Table 4-3. The pH values for groundwater samples collected at Site 3 ranged from 4.68 to 6.16 SUs. The pH values were below the lower range for the Federal and State secondary drinking water requirements. The temperature measurements ranged from 18.8 to 22.8 °C, and the specific conductance ranged from 20 to 15,000 $\mu\text{mhos}/\text{cm}$. With the exception of the single reported value of 15,000 $\mu\text{mhos}/\text{cm}$ reported in the groundwater sample from monitoring well WHF-3-2D, all specific conductance measurements were less than 230 $\mu\text{mhos}/\text{cm}$.

Turbidity measurements ranged from 5.4 to 1,428 NTUs. All of the groundwater samples had turbidity measurements above the Florida public water supply treatment technique criteria of 5 NTUs.

Site 4, North AVGAS Tank Sludge Disposal Area. Site 4, the North AVGAS Tank Sludge Disposal Area, has been investigated through the UST program as Site 1467. The UST program installed 41 shallow and intermediate depth monitoring wells at the site (Figure 2-2). Eighteen monitoring wells were sampled in 1993 as part of the UST investigation. The results presented in the following sections include the data from this sampling event.

Volatile Organic Compounds. Table 4-7 presents a summary of organic compounds detected in groundwater samples collected at the site.

Shallow Monitoring Wells. Ten VOCs, including methylene chloride, acetone, 1,2-dichloroethene (total), chloroform, 2-butanone, trichloroethene, benzene, toluene, ethylbenzene, and xylenes, were detected in groundwater samples collected from the shallow monitoring wells at Site 4. Methylene chloride, acetone, and chloroform were each detected in two groundwater samples. 2-Butanone was detected in a single shallow groundwater sample. 1,2-Dichloroethene (total) was detected in five of the shallow groundwater samples at concentrations ranging from 5 J to 80 $\mu\text{g}/\ell$.

Trichloroethene was detected in seven groundwater samples at concentrations ranging from 5 J to 510 $\mu\text{g}/\ell$.

BTEX compounds were detected in groundwater samples collected from 13 of the 14 shallow monitoring wells. The BTEX compounds were not detected in a groundwater sample collected from monitoring well WHF-1467-21. Concentrations of BTEX (total

Table 4-7
Summary Analytical Results for Organic Compounds
Detected in Site 4 (Underground Storage Tank [UST] Site 1467) Groundwater Samples

**Remedial Investigation and Feasibility Study, Phase II A
Technical Memorandum No. 5, Groundwater Assessment
NAS Whiting Field, Milton, Florida**

Table 4-7 (Continued)
Summary Analytical Results for Organic Compounds
Detected in Site 4 (Underground Storage Tank [UST] Site 1467) Groundwater Samples

Remedial Investigation and Feasibility Study, Phase II A
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Well Identifier(s) ABB-ES Sample Identifier: Collect Date: Laboratory Sample No.:	Shallow Monitoring Wells							Background Screening Criteria	Federal/State Standards
	WHF-1467-27	WHF-1467-27DUP	WHF-1467-28	WHF-2467-29	WHF-1467-31	WHF-1467-32	WHF-1467-33		
Volatile Organic Compounds (µg/l)									
Methylene chloride	2 J	-	-	-	3 J	-	-	ND	¹ 5/ ¹ 15
Acetone	1	-	-	-	-	-	49 J	ND	NA/ ³ 700
1,2-Dichloroethene (total)	5 J	5 J	12 J	-	-	-	61 J	ND	¹ 5/ ¹ 70/ ¹ 5/ ¹ 70
Chloroform	2	1 J	7 J	-	-	-	-	ND	¹ 100/ ³ 6
2-Butanone	1	-	-	-	-	-	-	ND	NA/ ³ 4,200
Trichloroethene	100	110	510	-	5 J	-	78 J	ND	¹ 5/ ¹ 3
Benzene	650	700	210	170	36	500 D	1,200	8	¹ 5/ ¹ 1
Toluene	340	370	460	9 J	86	4,200 D	830	26	¹ 1,000/ ¹ 1,000, ² 40
Ethylbenzene	130	130	150	47	9 J	870 D	390	ND	¹ 700/ ¹ 700, ² 30
Xylenes (total)	310	340	490	230	13	2,600 D	1,400	ND	¹ 10,000/ ¹ 10,000, ² 20
Total BTEX	1,430	1,540	1,320	1,776	1,920	8,170	3,820	34	NA/ ⁴ 50
Semivolatile Organic Compounds (µg/l)									
Phenol	-	-	-	-	-	1 J	22	ND	NA/ ³ 10
bis(2-Chloroethyl)ether	-	-	-	-	-	-	18	ND	NA/ ³ 7.5
2-Methylphenol	-	-	-	-	-	4 J	17	ND	NA/ ³ 350
4-Methylphenol	-	-	-	-	-	5 J	6 J	ND	NA/ ³ 35
2,4-Dimethylphenol	-	-	-	-	-	2 J	6 J	ND	NA/ ³ 400
Naphthalene	7 J	6 J	-	1 J	-	3 J	-	ND	NA/ ³ 6.8
2-Methylnaphthalene	1 J	1 J	2 J	1 J	-	3 J	-	ND	NA/NA
Phenanthrene	-	-	1 J	-	-	2 J	-	ND	NA/ ³ 10
Carbazole	-	-	-	-	-	-	-	ND	NA/ ³ 7.5
Fluoranthene	-	-	-	-	-	1 J	-	ND	NA/ ³ 280
bis(2-Ethylhexyl)-phthalate	1 J	-	-	1 J	1 J	-	2 J	ND	¹ 6/ ¹ 6
Pesticides and Polychlorinated Biphenyls (µg/l)									
None detected									
See notes at end of table.									

Table 4-7 (Continued)
Summary Analytical Results for Organic Compounds
Detected in Site 4 (Underground Storage Tank [UST] Site 1467) Groundwater Samples

**Remedial Investigation and Feasibility Study, Phase IIA
Technical Memorandum No. 5, Groundwater Assessment
NAS Whiting Field, Milton, Florida**

Well Identifier: ABB-ES Sample Identifier: Collect Date: Laboratory Sample No.:	Intermediate Monitoring Wells					Background Screening Criteria	Federal/State Standards
	WHF-1467-2D	WHF-1467-5D	WHF-1467-6D	WHF-1467-7D	WHF-4-1		
	WHF14672D	WHF14675D	WHF14676D	WHF14677D	WHF4-1		
	29-AUG-93	27-AUG-93	27-AUG-93	29-AUG-93	19-JAN-94		
	90128004	90125004	90125005	90128007	90343002		
Volatile Organic Compounds $\mu\text{g/l}$							
Methylene chloride	--	--	--	--	--	ND	¹ 5/ ¹ 15
Acetone	--	--	--	--	--	ND	NA/ ³ 700
1,2-Dichloroethene (total)	--	--	--	--	--	ND	¹ , ⁶ 70/ ¹ , ⁶ 70
Chloroform	25 J	--	--	--	--	ND	¹ 100/ ³ 6
2-Butanone	190	8 J	--	--	--	ND	NA/ ³ 4,200
Trichloroethene	38 J	--	--	--	--	ND	¹ 5/ ¹ 3
Benzene	1,800	--	3,100	--	--	8	¹ 5/ ¹ 1
Toluene	1,600 D	--	18,000	--	--	26	¹ ,1000/ ¹ ,1000, ² 40
Ethylbenzene	440	--	2,000	1 J	--	ND	¹ 700/ ¹ 700, ² 30
Xylenes (total)	440	--	5,100	4 J	--	ND	¹ 10,000/ ¹ 10,000, ² 20
Total BTEX	4,280	--	28,200	5	--	34	NA/50
Semivolatile Organic Compounds $\mu\text{g/l}$							
Phenol	43	--	23	--	--	ND	NA/ ³ 10
bis(2-Chloroethyl)ether	--	--	--	--	--	ND	NA/ ³ 7.5
2-Methylphenol	18	--	44	--	--	ND	NA/ ³ 350
4-Methylphenol	58	--	57	--	--	ND	NA/ ³ 35
2,4-Dimethylphenol	1 J	--	--	--	--	ND	NA/ ³ 400
Naphthalene	--	--	10	--	--	ND	NA/ ³ 6.8
2-Methylnaphthalene	--	--	2 J	--	--	ND	NA/NA
Phenanthrene	--	--	--	--	--	ND	NA/ ³ 10
Carbazole	--	--	4 J	--	--	ND	NA/ ³ 7.5

Table 4-7 (Continued) Summary Analytical Results for Organic Compounds Detected in Site 4 (Underground Storage Tank [UST] Site 1467) Groundwater Samples							
Remedial Investigation and Feasibility Study, Phase IIA Technical Memorandum No. 5, Groundwater Assessment NAS Whiting Field, Milton, Florida							
Well Identifier:	Intermediate Monitoring Wells					Background Screening Criteria	Federal/State Standards
	WHF-1467-2D	WHF-1467-5D	WHF-1467-6D	WHF-1467-7D	WHF-4-1		
ABB-ES Sample Identifier:	WHF14672D	WHF14675D	WHF14676D	WHF14677D	WHF4-1		
Collect Date:	29-AUG-93	27-AUG-93	27-AUG-93	29-AUG-93	19-JAN-94		
Laboratory Sample No.:	90128004	90125004	90125005	90128007	90343002		
Fluoranthene	-	-	-	-	-	ND	NA/ ³ 280
bis(2-Ethylhexyl)phthalate	-	2 J	2 J	--	--	ND	6/ ¹ 6
Pesticides and Polychlorinated Biphenyls ($\mu\text{g/l}$)							
None detected							
¹ Primary maximum contaminant level (MCL).							
² Secondary MCL.							
³ Groundwater Guidance Concentration.							
⁴ Florida Petroleum investigation action level (Chapter 62-770.730 Florida Administrative Code [FAC]).							
⁵ cis 1,2-Dichloroethene was used for comparison.							
Notes: ABB-ES = ABB Environmental Services, Inc.							
MCLs = maximum contaminant levels.							
$\mu\text{g/l}$ = micrograms per liter.							
-- = compound was not detected above instrument detection limits.							
ND = compound not detected in background sample.							
NA = no applicable standard currently exists.							
█ = concentration meets or exceeds Federal or State maximum primary or secondary contaminant levels or Florida Petroleum investigation action level.							
J = estimated concentration.							
D = sample was diluted and reanalyzed.							
BTEX = benzene, toluene, ethylbenzene, and xylenes.							
E = the reported value is estimated because of interference.							
TT = treatment techniques.							

values) detected in groundwater samples collected from shallow monitoring wells ranged from 7 to 32,700 $\mu\text{g/l}$.

1,2-Dichloroethene was detected in a single sample at a concentration exceeding the Federal and State Primary MCLs of 70 $\mu\text{g/l}$. Trichloroethene was detected in 7 of the 14 groundwater samples from shallow monitoring wells at concentrations exceeding the Federal and State Primary MCLs of 5 and 3 $\mu\text{g/l}$, respectively.

All of the detected concentrations of benzene met or exceeded the State Primary MCL of 1 $\mu\text{g/l}$. Eleven of the concentrations also exceeded the Federal Primary MCL of 5 $\mu\text{g/l}$. Toluene was detected in three samples at concentrations that exceeded the Federal and State Primary MCL of 1,000 $\mu\text{g/l}$. In seven additional samples detected concentrations exceeded the State secondary MCL of 40 $\mu\text{g/l}$. Ethylbenzene was detected in two groundwater samples at concentrations exceeding the Federal and State Primary MCLs of 700 $\mu\text{g/l}$, and in seven additional samples at concentrations exceeding the Florida Secondary MCL of 30 $\mu\text{g/l}$. Detected concentrations of xylene in ten samples exceeded the State Secondary MCL of 20 $\mu\text{g/l}$. Eleven of 14 groundwater samples collected from shallow monitoring wells contained BTEX (total values) at concentrations exceeding the Florida UST cleanup goal of 50 $\mu\text{g/l}$.

Intermediate Depth Monitoring Wells. Seven VOCs were detected in groundwater samples from the intermediate depth monitoring wells at Site 4. Groundwater samples from each of the monitoring wells, except WHF-4-1, contained at least one detected VOC concentration. The VOC, 2-butanone, was detected in two groundwater samples and chloroform was detected in a single sample. Trichloroethene was detected in a groundwater sample from monitoring well WHF-1467-2D at a concentration of 38 J $\mu\text{g/l}$. Concentrations of BTEX (total values) detected in the groundwater samples ranged from 5 to 28,200 $\mu\text{g/l}$.

Trichloroethene was detected in the groundwater sample collected from monitoring well WHF-1467-2D at a concentration exceeding the Federal and State MCLs of 5 and 3 $\mu\text{g/l}$, respectively. Benzene and toluene were detected in groundwater samples collected from monitoring wells WHF-1467-2D and WHF-1467-6D at concentrations exceeding the Federal and State Primary MCLs. The Federal and State Primary MCLs for benzene are 5 and 1 $\mu\text{g/l}$, respectively, and for toluene is 10,000 $\mu\text{g/l}$. Ethylbenzene also was detected in the groundwater sample from monitoring well WHF-1467-6D at a concentration exceeding the Federal and State Primary MCL of 700 $\mu\text{g/l}$, and the detected concentration in sample WHF-1467-2D exceeded the State Secondary MCL of 30 $\mu\text{g/l}$. Detected concentrations of xylenes in samples WHF-1467-2D and WHF-1467-6D exceeded the State Secondary MCL of 20 $\mu\text{g/l}$. Two samples (WHF-1467-2D and WHF-1467-6D) contained BTEX (total values) at concentrations exceeding the Florida UST cleanup criteria of 50 $\mu\text{g/l}$.

Semivolatile Organic Compounds. Eleven SVOCs, including phenol, bis(2-chloroethyl)ether, 2-methylphenol, 4-methylphenol, 2,4-dimethylphenol, naphthalene, 2-methylnaphthalene, phenanthrene, carbazole, fluoranthene, and bis(2-ethylhexyl)phthalate, were detected in groundwater samples collected from Site 4 monitoring wells.

Shallow Monitoring Wells. Ten SVOCs, including phenol, bis(2-chloroethyl)ether, 2-methylphenol, 4-methylphenol, 2,4-dimethylphenol, naphthalene, 2-methylnaphthalene, phenanthrene, fluoranthene, and bis(2-ethylhexyl)phthalate, were detected in groundwater samples collected from Site 4 shallow monitoring wells. Bis (2-

ethylhexyl)phthalate detected in the groundwater sample collected from monitoring well WHF-1467-20 was the only SVOC exceeding the Federal and State Primary or Secondary MCLs. The Federal and State Primary MCL for bis(2-ethylhexyl)phthalate is 6 $\mu\text{g/l}$. Three additional compounds, including 4-methylphenol, naphthalene, and phenol, were detected at concentrations exceeding Florida Groundwater Guidance concentrations.

Intermediate Depth Monitoring Wells. Eight SVOCs, including phenol, 2-methylphenol, 4-methylphenol, 2,4-dimethylphenol, naphthalene, 2-methylnaphthalene, carbazole, and bis(2-ethylhexyl)phthalate, were detected in the groundwater samples collected from the intermediate depth monitoring wells. None of the detected concentrations of SVOCs exceeded the Federal or State Primary or Secondary MCLs. Detected concentrations of phenol, 4-methylphenol, and naphthalene exceeded the Florida Groundwater Guidance concentrations.

Pesticides and PCBs. No pesticides and PCB compounds were detected in groundwater samples collected at Site 4.

Inorganic Analytes. Table 4-8 summarizes the inorganic analytical results for groundwater samples collected at Site 4. Twenty inorganic analytes were detected in the groundwater samples collected from the Site 4 monitoring wells. Because the site was being investigated under the UST program, analysis for cyanide was not conducted for the groundwater samples. Additionally, the physical parameters of pH, specific conductance, temperature, and turbidity were not measured during the groundwater sampling event at Site 4.

Shallow Monitoring Wells. Twenty inorganic analytes were detected in the groundwater samples collected at Site 4. Eleven inorganic analytes, including antimony, arsenic, cadmium, calcium, cobalt, lead, magnesium, manganese, potassium, sodium, and zinc, were detected at concentrations exceeding the background screening criteria. Six of the inorganic analytes, including aluminum, antimony, cadmium, iron, lead, and manganese, were detected at concentrations exceeding Federal and State Primary or Secondary MCLs.

Intermediate Depth Monitoring Wells. Eighteen inorganic analytes were detected in the groundwater samples collected from the Site 4 intermediate depth monitoring wells. Four inorganic analytes (arsenic, calcium, lead, and zinc) were detected at concentrations exceeding the background screening criteria. In addition, four inorganic analytes (aluminum, iron, lead, and manganese) were detected at concentrations exceeding Federal and State Primary or Secondary MCLs. Also, these four analytes were detected in the samples from the shallow monitoring wells at concentrations that exceeded the Federal and State MCLs.

Site 32, North Field Maintenance Hangar. Six groundwater samples were collected from five shallow monitoring wells (one sample was a duplicate sample) located at Site 32. Table 4-9 presents a summary of the organic compounds detected in groundwater samples from Site 32.

Volatile Organic Compounds. Six VOCs were detected in groundwater samples collected from Site 32 monitoring wells. The VOCs detected include 1,2-dichloroethene (total), trichloroethene, benzene, toluene, ethylbenzene, and xylenes (total). 1,2-Dichloroethene and trichloroethene were detected in five of the six samples at concentrations ranging from 7 J to 1,000 $\mu\text{g/l}$ and 10 to 1,600 $\mu\text{g/l}$, respectively. Benzene, ethylbenzene, and xylenes were detected in all six of the groundwater samples from monitoring wells, and toluene was detected in five of six groundwater samples.

Table 4-8
Summary Analytical Results for Inorganic Parameters
Detected in Site 4 (Underground Storage Tank [UST] Site 1467) Groundwater Samples

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Well Identifier:	Shallow Monitoring Wells							Background Screening Criteria	Federal/State Standards
	WHF-1467-2	WHF-1467-20	WHF-1467-21	WHF-1467-23	WHF-1467-24	WHF-1467-25	WHF-1467-26		
ABB-ES Sample Identifier:	WHF14672	WHF146720	WHF146721	WHF146723	WHF146724	WHF146725	WHF146726		
Collect Date:	29-AUG-93	27-AUG-93	29-AUG-93	26-AUG-93	29-AUG-93	27-AUG-93	29-AUG-93		
Laboratory Sample No.:	90128010	90125006	90128003	90121004	90128008	90125002	90128006		
Metals and Cyanide ($\mu\text{g/l}$)									
Aluminum	7,250	2,600 J	22,500	7,110 J	14,800	12,900 J	12,400	53,360	² 200/ ¹ 200
Antimony	-	12.5 J	-	-	-	-	-	ND	¹ 6/ ¹ 6
Arsenic	-	12 J	-	-	4.3 J	3.1 J	17.2	ND	¹ 50/ ¹ 50
Barium	35.6 J	78.7 J	56.8 J	35 J	52.2 J	58.2 J	58.3 J	126.8	¹ 2,000/ ¹ 2,000
Beryllium	0.46 J	-	1.6 J	0.24 J	0.79 J	0.76 J	0.33 J	3.6	¹ 4/ ¹ 4
Cadmium	4.5 J	-	--	-	-	-	3.1 J	ND	¹ 5/ ¹ 5
Calcium	908 J	20,700	5,850	4,320 J	9,840	8,980	3,950 J	4,706	NA/NA
Chromium	26.4	7 J	84	45.4	46	52.9	35.9	872	¹ 100/ ¹ 100
Cobalt	4.9 J	-	3.4 J	-	5.1 J	-	30.1 J	20.7	NA/NA
Copper	43.1	22.6 J	33.3 J	22.6 J	22.3 J	30.8	18.4 J	67.6	TT 1,300 ² 1,000/ ² 1,000
Iron	64,300	33,300	56,000	36,600	78,300	46,400	64,200	80,066	² 300/ ³ 00
Lead	4.8	107	6.3	3.5	16	9.3	481	20.6	TT 15/ ¹ 15
Magnesium	999 J	3,170 J	1,800 J	1,280 J	3,520 J	3,530 J	2,610 J	2,922	NA/NA
Manganese	79.9	605	137	59.6	241	21.4	153	188	² 50/ ² 50
Mercury	-	-	-	0.05 J	-	0.25	-	0.32	¹ 2/ ¹ 2
Nickel	-	14.2 J	-	-	-	-	17.9 J	744	¹ 100/ ¹ 100
Potassium	--	17,900	4,400 J	2,350 J	3,170 J	1,360 J	2,740 J	17,270	NA/NA
Sodium	5,030	54,200	4,450 J	4,620 J	2,960 J	3,330 J	4,000 J	5,740	NA/ ¹ 60,000
Vanadium	53.3	4.4 J	196	71	80	112	53.8	335	NA/ ³ 49
Zinc	74.6 J	186	81.6 J	100	46.4 J	67.1	66.9 J	140	² 5,000/ ² 5,000

See notes at end of table.

Table 4-8 (Continued)
Summary Analytical Results for Inorganic Parameters
Detected in Site 4 (Underground Storage Tank [UST] Site 1467) Groundwater Samples

Remedial Investigation and Feasibility Study, Phase II A
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Well Identifier:	Shallow Monitoring Wells							Background Screening Criteria	Federal/State Standards
	WHF-1467-27	WHF-1467-27 DUP	WHF-1467-28	WHF-1467-29	WHF-1467-31	WHF-1467-32	WHF-1467-33		
ABB-ES Sample Identifier:	WHF146727	WHFDUP3	WHF146728	WHF146729	WHF146731	WHF146732	WHF146733		
Collect Date:	28-AUG-93	28-AUG-93	29-AUG-93	27-AUG-93	28-AUG-93	29-AUG-93	28-AUG-93		
Laboratory Sample No.:	90127002	90127007	90128009	90125003	90127003	90128005	90127001		
Metals and Cyanide ($\mu\text{g/l}$)									
Aluminum	1,590 J	1,000	29,200	3,380 J	2,530 J	4,090	32.6 J	53,360	² 200/ ² 200
Antimony	--	--	--	--	--	--	--	ND	¹ 6/ ¹ 6
Arsenic	3.2 J	2.6 J	12.1	4 J	--	16.9	--	ND	¹ 50/ ¹ 50
Barium	51.1 J	61.7 J	79.6 J	39.1 J	18.2 J	82.3 J	0.49 J	126.8	¹ 2,000/ ¹ 2,000
Beryllium	--	--	1.1 J	0.21 J	--	--	0.2 J	3.6	¹ 4/ ¹ 4
Cadmium	3.8 J	--	17.2	--	4.6 J	--	--	ND	¹ 5/ ¹ 5
Calcium	4,510 J	6,090	3,780 J	2,640 J	1,010 J	1,800 J	20 J	4,706	NA/NA
Chromium	5.1 J	4.7 J	62.8	14.4	9.6 J	25.6	--	872	¹ 100/ ¹ 100
Cobalt	3.8 J	--	4.6 J	--	--	--	--	20.7	NA/NA
Copper	5.6 J	8.8 J	60.3	13.5 J	8.5 J	22.3 J	4.4 J	67.6	TT 1,300 ² 1,000/ ² 1,000
Iron	5,770	6,020	29,300	15,400	6,810	33,700	7.9 J	80,066	² 300/ ² 300
Lead	9.2	9.5	128	3.2	9.3	67	--	20.6	TT 15/ ¹ 15
Magnesium	1,150 J	1,220 J	1,470 J	3,270 J	582 J	801 J	--	2,922	NA/NA
Manganese	15.3	17.4	64.1	13.7 J	11.9 J	362	--	188	² 50/ ² 50
Mercury	0.04 J	0.04 J	--	0.06 J	0.08 J	--	0.1 J	0.32	¹ 2/ ¹ 2
Nickel	--	--	25.9 J	--	--	--	--	744	¹ 100/ ¹ 100
Potassium	844 J	877 J	1,170 J	1,780 J	--	--	--	17,270	NA/NA
Sodium	3,680 J	3,660 J	7,410	1,670 J	1,980 J	5,120	9,490	5,740	NA/ ¹ 160,000
Vanadium	7 J	3.3 J	146	27.8 J	15.9 J	47.5 J	--	335	NA/ ³ 49
Zinc	--	31.3	161 J	45.7	--	52.2 J	--	140	² 5,000/ ² 5,000

See notes at end of table.

Table 4-8 (Continued)
Summary Analytical Results for Inorganic Parameters
Detected in Site 4 (Underground Storage Tank [UST] Site 1467) Groundwater Samples

Remedial Investigation and Feasibility Study, Phase II A
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Well Identifier:	Intermediate Monitoring Wells					Background Screening Criteria	Federal/State Standards
	WHF-1467-2D	WHF-1467-5D	WHF-1467-6D	WHF-1467-7D	WHF-4-1		
ABB-ES Sample Identifier:	WHF14672D	WHF14675D	WHF14676D	WHF14677D	WHF4-1		
Collect Date:	29-AUG-93	27-AUG-93	27-AUG-93	29-AUG-93	19-JAN-94		
Laboratory Sample No.:	90128004	90125004	90125005	90128007	90343002		
Metals and Cyanide (µg/l)							
Aluminum	566	77.2 J	8,460 J	2,950	--	53,360	² 200/ ² 200
Antimony	--	--	--	--	--	ND	¹ 6/ ¹ 6
Arsenic	7.6 J	1.7 J	8.5 J	--	4.2 J	ND	¹ 50/ ¹ 50
Barium	41.5 J	5.6 J	92.8 J	53.3 J	39.4 J	126.8	¹ 2,000/ ¹ 2,000
Beryllium	--	--	0.48 J	0.48 J	--	3.6	¹ 4/ ¹ 4
Cadmium	--	--	--	--	--	3.2	¹ 5/ ¹ 5
Calcium	14,700	2,070 J	8,270	1,340 J	592 J	4,706	NA/NA
Chromium	--	--	24.9	9.1 J	--	872	¹ 100/ ¹ 100
Cobalt	--	--	3.6 J	3.5 J	--	20.7	NA/NA
Copper	19.9 J	--	47.2	22.3 J	--	67.6	TT 1,300 ² 1,000/ ² 1,000
Iron	4,750	60.9 J	76,600	6,230	13,100	80,066	² 300/ ² 300
Lead	44.2	--	43	4.8	--	20.6	TT 15/ ¹ 15
Magnesium	1,670 J	270 J	2,580 J	1,230 J	825 J	2,922	NA/NA
Manganese	140	33.7	128	19.7	96.8	188	² 50/ ² 50
Mercury	--	--	0.07 J	--	--	0.32	¹ 2/ ¹ 2
Nickel	--	--	33.6 J	--	--	744	¹ 100/ ¹ 100
Potassium	5,650	1,580 J	13,000	4,210 J	--	17,270	NA/NA

See notes at end of table.

Table 4-8 (Continued)
Summary Analytical Results for Inorganic Parameters
Detected in Site 4 (Underground Storage Tank [UST] Site 1467) Groundwater Samples

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Well Identifier:	Intermediate Monitoring Wells					Background Screening Criteria	Federal/State Standards
	WHF-1467-2D	WHF-1467-5D	WHF-1467-6D	WHF-1467-7D	WHF-4-1		
ABB-ES Sample Identifier:	WHF14672D	WHF14675D	WHF14676D	WHF14677D	WHF4-1		
Collect Date:	29-AUG-93	27-AUG-93	27-AUG-93	29-AUG-93	19-JAN-94		
Laboratory Sample No.:	90128004	90125004	90125005	90128007	90343002		
Metals and Cyanide ($\mu\text{g/l}$) (Continued)							
Sodium	5,580	4,500 J	3,890 J	2,390 J	1790 J	5,740	NA/ ¹ 160,000
Vanadium	-	-	29.2 J	16.7 J	-	335	NA/ ² 49
Zinc	30.4 J	18.6 J	251	68.4 J	0.98	140	² 5,000/ ² 5,000

¹ Primary maximum contaminant level (MCL).

² Secondary MCL.

³ Groundwater Guidance Concentration.

Notes: ABB-ES = ABB Environmental Services, Inc.

MCLs = maximum contaminant levels.

$\mu\text{g/l}$ = micrograms per liter.

= concentration meets or exceeds Federal or State maximum contaminant levels.

J = estimated concentration.

-- = compound was not detected above instrument detection limits.

ND = compound not detected in background sample.

NA = no applicable standard currently exists.

TT = treatment techniques.

Table 4-9
Summary Analytical Results for Organic Compounds Detected in Groundwater Samples at Site 32

Remedial Investigation and Feasibility Study, Phase IIA
Technical Memorandum No. 5, Groundwater Assessment
NAS Whiting Field, Milton, Florida

Well Identifier: ABB-ES Sample Identifier:	Shallow Monitoring Wells						Background Screening Criteria	Federal/State MCLs
	WHF-32-1	WHF-32-1DUP	WHF-32-2	WHF-32-3	WHF-32-4	WHF-32-5		
Collect Date:	20-JAN-94	20-JAN-94	19-JAN-94	19-JAN-94	20-JAN-94	20-JAN-94		
Laboratory Sample No.:	90353003	90353004	90343003	90343005	90353006	90353002		
Volatile Organic Compounds ($\mu\text{g/l}$)								
1,2-Dichloroethene (total)	110	110	1,000	630	--	7 J	ND	^{1,4} 70/ ^{1,4} 70
Trichloroethene	95	96	1,600	590	--	10	ND	¹ 5/ ¹ 3
Benzene	760	670	340	860	1,900	170	8	¹ 5/ ¹ 1
Toluene	1,600	1,400	66 J	25 J	16,000	--	26	¹ 1,000/ ¹ 1,000, ² 40
Ethylbenzene	970	820	33 J	210	1,800	14	ND	¹ 700/ ¹ 700, ² 30
Xylenes (total)	1,700	1,500	190 J	460	6,400	57	ND	¹ 10,000/ ¹ 10,000, ² 20
Semivolatile Organic Compounds ($\mu\text{g/l}$)								
Phenol	14	--	--	--	42	--	ND	NA/ ³ 10
2-Methylphenol	13	13	--	--	110	--	ND	NA/ ³ 50
4-Methylphenol	13	14	--	--	80	--	ND	NA/ ³ 5
2,4-Dimethylphenol	8 J	9 J	--	--	44	--	ND	NA/NA
Naphthalene	10	8 J	4 J	18	12 J	0.5 J	ND	NA/ ³ 6.8
2-Methylnaphthalene	4 J	4 J	1 J	9 J	6 J	--	ND	NA/NA
Acenaphthene	--	--	--	--	1 J	--	ND	NA/ ³ 2,100
Fluorene	--	--	--	--	1 J	--	ND	NA/ ³ 280
Phenanthrene	1 J	1 J	--	--	6 J	--	ND	NA/ ³ 10
Fluoranthene	--	--	--	--	4 J	--	ND	NA/ ³ 280
Pyrene	--	--	--	--	3 J	--	ND	NA/ ³ 10
bis(2-Ethylhexyl)phthalate	--	--	2 J	2 J	6 J	--	ND	¹ 6/ ¹ 6
Pesticides and Polychlorinated Biphenyls ($\mu\text{g/l}$)								
None detected								

¹ Primary maximum contaminant level (MCL)

² Secondary MCL.

³ Groundwater Guidance Concentration.

⁴ CIS 1,2 Dichloroethene was used for comparison.

Notes: ABB-ES = ABB Environmental Services, Inc.

MCLs = maximum contaminant levels.

$\mu\text{g/l}$ = micrograms per liter.

■ = concentration meets or exceeds Federal or State Primary or Secondary MCLs.

-- = compound was not detected above instrument detection limits.

J = estimated concentration.

ND = compound not detected in background sample.

NA = no applicable standard currently exists.

Five of the VOCs, including 1,2-dichloroethene (total), trichloroethene, benzene, toluene, and ethylbenzene, were detected at concentrations exceeding the Federal and State Primary MCLs. 1,2-Dichloroethene was detected in four groundwater samples at concentrations exceeding the Federal and State Primary MCLs of 70 $\mu\text{g/l}$. Trichloroethene was detected in five of the groundwater samples at concentrations exceeding the Federal and State Primary MCLs of 5 and 3 $\mu\text{g/l}$, respectively. Benzene was detected in all six of the groundwater samples at concentrations exceeding the Federal and State Primary MCLs of 5 and 1 $\mu\text{g/l}$, respectively. Toluene and ethylbenzene were detected in three groundwater samples at concentrations exceeding the Federal and State Primary MCLs of 1,000 $\mu\text{g/l}$ and 700 $\mu\text{g/l}$, respectively and in two additional samples concentrations exceeded the State Secondary MCL of 30 $\mu\text{g/l}$ and 20 $\mu\text{g/l}$ respectively.

Semivolatile Organic Compounds. Twelve SVOCs, including phenol, 2-methylphenol, 4-methylphenol, 2,4-Dimethylphenol, naphthalene, 2-methylnaphthalene, acenaphthene, fluorene, phenanthrene, fluoranthene, pyrene, and bis(2-ethylhexyl)phthalate, were detected in the groundwater samples collected from shallow monitoring wells at Site 32. All 12 of the SVOCs were detected in the sample from monitoring well WHF-32-4 and 7 of the SVOCs were detected in the sample from monitoring well WHF-32-1. Naphthalene was detected in all of the samples collected at the site and 2-methylnaphthalene was detected in all of the groundwater samples except the one from monitoring well WHF-32-5.

The detected concentration of bis(2-ethylhexyl)phthalate in monitoring well WHF-32-4 (6 J $\mu\text{g/l}$) equaled the Federal and State Primary MCL of 6 $\mu\text{g/l}$.

Pesticides and PCBs. No pesticides or PCB compounds were detected in groundwater samples collected from monitoring wells at Site 32.

Inorganic Analytes. Table 4-10 provides a summary of inorganic analytes detected in the groundwater samples collected from Site 32 monitoring wells. Twenty-one inorganic analytes were detected in groundwater samples collected from the site.

Inorganic analytes, including aluminum, antimony, arsenic, barium, cadmium, calcium, copper, iron, lead, manganese, mercury, silver, vanadium, and zinc, were detected at concentrations exceeding 2 times the average background screening criteria.

Aluminum and iron exceeded the Federal and State Secondary MCL of 200 and 300 $\mu\text{g/l}$, respectively, in all groundwater samples collected from Site 32 monitoring wells. Antimony was detected in the groundwater sample collected from monitoring well WHF-32-5 at a concentration exceeding the Federal and State Primary MCL of 6 $\mu\text{g/l}$. Cadmium was detected at concentrations exceeding the Federal and State Primary MCL of 5 $\mu\text{g/l}$ in three groundwater samples. Chromium was detected in four of the samples at concentrations that exceeded the Federal and State Primary MCLs of 100 $\mu\text{g/l}$. Copper was detected in groundwater samples collected from two monitoring wells at concentrations exceeding the Federal and State Secondary MCL of 100 $\mu\text{g/l}$. Lead was detected in five of six groundwater samples collected from monitoring wells at concentrations exceeding the Federal and State treatment technique MCL of 15 $\mu\text{g/l}$. Manganese exceeded the Federal and State Secondary MCL of 50 $\mu\text{g/l}$ in five of six samples.

Table 4-10
Summary Analytical Results for Inorganic Analytes Detected in Groundwater Samples at Site 32

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Well Identifier:	Shallow Monitoring Wells						Background Screening Criteria	Federal/State Standards
	WHF-32-1	WHF-32-1DUP	WHF-32-2	WHF-32-3	WHF-32-4	WHF-32-5		
ABB-ES Sample Identifier:	WHF32-1	WHF32-1A	WHF32-2	WHF32-3	WHF32-4	WHF32-5		
Collect Date:	20-JAN-94	20-JAN-94	19-JAN-94	19-JAN-94	20-JAN-94	20-JAN-94		
Laboratory Sample No.:	90353003	90353004	90343003	90343005	90353006	90353002		
Inorganic Analytes (µg/l)								
Aluminum	53,900	49,800	1,890	10,400	40,900	44,700	53,360	² 200/ ¹ 200
Antimony	--	--	--	--	--	21.9 J	ND	¹ 6/ ¹ 6
Arsenic	4.1 J	5 J	--	3.4 J	4.3 J	--	ND	¹ 50/ ¹ 50
Barium	143 J	138 J	35.6 J	53.8 J	119 J	123 J	126.8	¹ 2,000/ ¹ 2,000
Beryllium	1.2 J	1 J	--	--	0.4 J	0.77 J	3.6	¹ 4/ ¹ 4
Cadmium	4.6 J	3.6 J	--	5.7	12.5	7	ND	¹ 5/ ¹ 5
Calcium	1,320 J	1,270 J	600 J	554 J	8,160	3,380 J	4,706	NA/NA
Chromium	212	201	8 J	124	61.2	133	872	¹ 100/ ¹ 100
Cobalt	18.6 J	17.9 J	--	--	2.7 J	6.8 J	20.7	NA/NA
Copper	195	181	--	14.5 J	46	48.5	67.6	TT 1,300 ² 1,000/ ² 1,000
Iron	110,000	108,000	2,660	11,000	86,900	64,900	80,066	² 300/ ³ 300
Lead	41.3	51.7	1.5 J	22.3	285	19.8	20.6	TT 15/ ¹ 15
Magnesium	1,650 J	1,630 J	767 J	878 J	2,140 J	1,430 J	2,922	NA/NA
Manganese	3,220	3,020	9.2 J	232	1,140	729	188	² 50/ ² 50
Mercury	0.47	0.48	--	--	0.22	0.23	0.32	¹ 2/ ¹ 2
Nickel	48.3	49.4	--	70.9	16.8 J	25.4 J	744	¹ 100/ ¹ 100
Potassium	2,160 J	1,860 J	--	670 J	2,400 J	1,780 J	17,270	NA/NA
Silver	--	--	--	--	2.7 J	--	ND	² 100/ ¹ 100

See notes at end of table.

Table 4-10 (Continued)
Summary Analytical Results for Inorganic Analytes Detected in Groundwater Samples at Site 32

Remedial Investigation and Feasibility Study, Phase II A
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Well Identifier:	Shallow Monitoring Wells						Background Screening Criteria	Federal/State Standards
	WHF-32-1	WHF-32-1DUP	WHF-32-2	WHF-32-3	WHF-32-4	WHF-32-5		
ABB-ES Sample Identifier:	WHF32-1	WHF32-1A	WHF32-2	WHF32-3	WHF32-4	WHF32-5		
Collect Date:	20-JAN-94	20-JAN-94	19-JAN-94	19-JAN-94	20-JAN-94	20-JAN-94		
Laboratory Sample No.:	90353003	90353004	90343003	90343005	90353006	90353002		
Inorganic Analytes (µg/l) (Continued)								
Sodium	5,410	5,050	1,980 J	4,390 J	5,310	2,760 J	5,740	NA/ ¹ 160,000
Vanadium	515	510	11.3 J	26 J	80.3	269	335	NA/ ³ 49
Zinc	1,270	1,200	5.5 J	14.7 J	230	81.9	140	² 5,000/ ² 5,000

¹ Primary maximum contaminant level (MCL).

² Secondary MCL.

³ Groundwater Guidance Concentration.

Notes: ABB-ES = ABB Environmental Services, Inc.

MCLs = maximum contaminant levels.

µg/l = micrograms per liter.

█ = concentration meets or exceeds Federal or State Primary or Secondary MCLs.

-- = compound was not detected above instrument detection limits.

J = estimated concentration.

ND = compound not detected in background sample.

NA = no applicable standard currently exists.

TT = treatment techniques.

Field Parameters. The field parameter results are presented in Table 4-3. The pH values for groundwater samples collected at Site 32 ranged from 4.57 to 6.14 SU's. The pH values were below the lower range of 6.5 SU's established as the Federal and Florida secondary MCL requirements. The temperature measurements ranged from 19.5 to 22 °C, and the specific conductance ranged from 22 to 240 μ hos/cm.

Turbidity measurements ranged from 140.3 to 4,036 NTUs. All of the groundwater samples had turbidity measurements above the Florida public water supply treatment technique criteria of 5 NTUs.

To assist in the review and interpretation of the groundwater data from monitoring wells, isoconcentration maps of BTEX and trichloroethene for the North Field Hangar Area have been completed. Figure 4-1 presents the isoconcentration contour map for the combined petroleum compounds BTEX, which were detected in groundwater samples collected from shallow monitoring wells completed in the sand-and-gravel aquifer. Figure 4-2 presents the isoconcentration contour lines for trichloroethene, which was detected in groundwater samples from the same area and aquifer zone.

Midfield Industrial Area. This site grouping comprises Site 5, Battery Acid Seepage Pit; Site 6, South Transformer Oil Disposal Area; and Site 33, Midfield Maintenance Hangar Area.

Site 5 Battery Acid Seepage Pit. Groundwater samples were collected from nine monitoring wells including three shallow wells, one intermediate depth monitoring well, and four deep monitoring wells. The locations of the monitoring wells are shown on Figure 2-2. Table 4-11 provides a summary of the organic compounds detected in groundwater samples collected from Site 5.

Volatile Organic Compounds. Seven VOCs, including chloromethane, acetone, trichloroethene, tetrachloroethene, benzene, toluene and xylenes (total), were detected in groundwater samples collected from Site 5 monitoring wells.

Shallow Monitoring Wells. Chloromethane, acetone, and tetrachloroethene were detected as singular occurrences in groundwater samples collected from different monitoring wells at Site 5. Acetone was detected in both the original and duplicate samples. Tetrachloroethene was the only VOC detected at a concentration exceeding Federal and State Primary or Secondary MCLs. The Federal and State Primary MCLs for tetrachloroethene are 5 and 3 μ g/l, respectively.

Intermediate Depth Monitoring Wells. Acetone, trichloroethene, and benzene were detected in a groundwater sample collected from the intermediate depth monitoring well WHF-5-3. The detected concentrations of trichloroethene and benzene exceeded the Federal and State Primary MCLs. The Federal and State Primary MCLs for trichloroethene are 5 and 3 μ g/l, respectively, and for benzene are 5 and 1 μ g/l, respectively.

Deep Monitoring Wells. Trichloroethene, toluene, and xylenes (total) were detected at estimated concentrations in the groundwater sample from monitoring well WHF-5-8D. Also, trichloroethene was detected in the groundwater sample

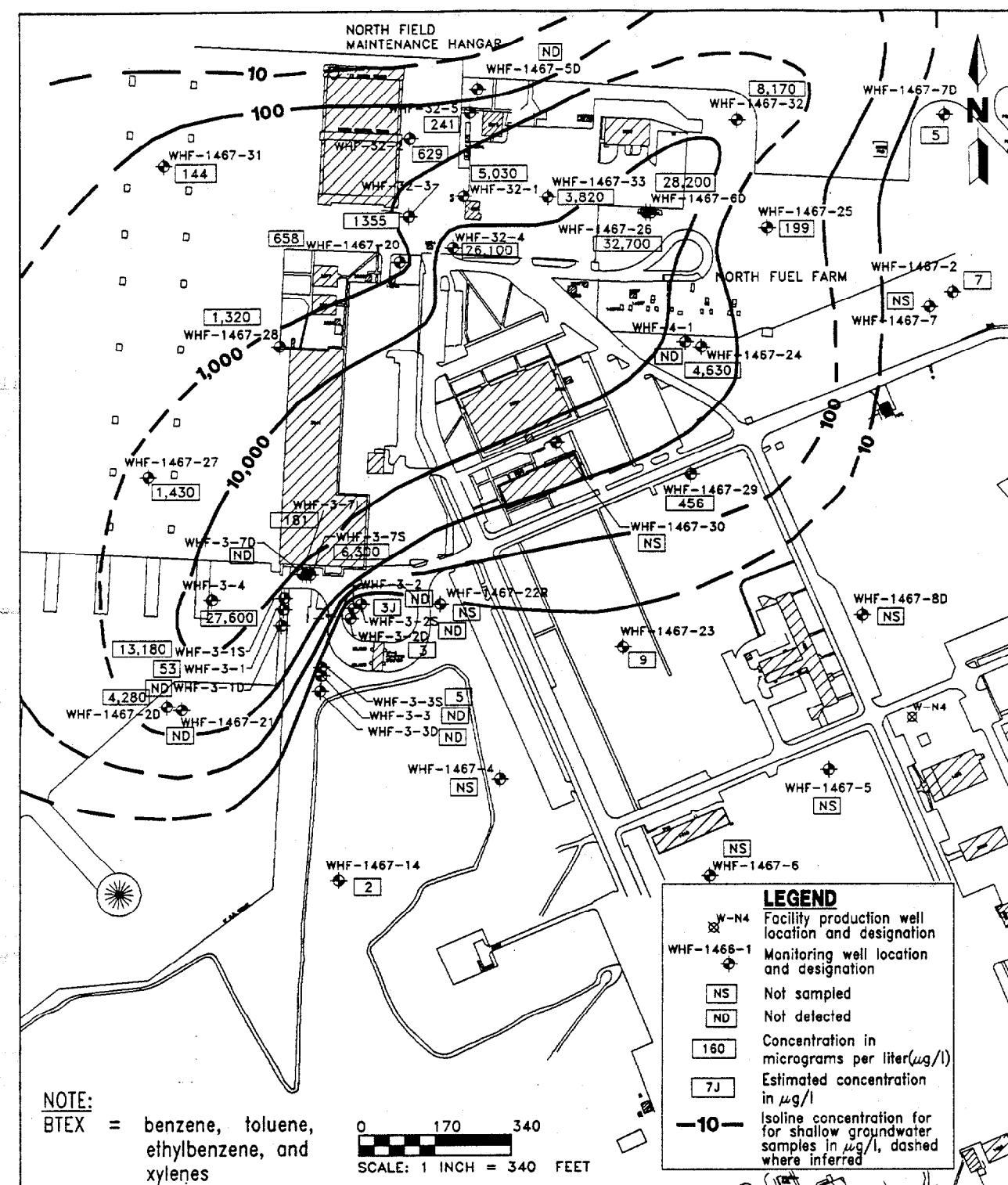


FIGURE 4-1
BTEX ISOCONCENTRATION MAP,
NORTH FIELD INDUSTRIAL AREA

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MILTON, FLORIDA

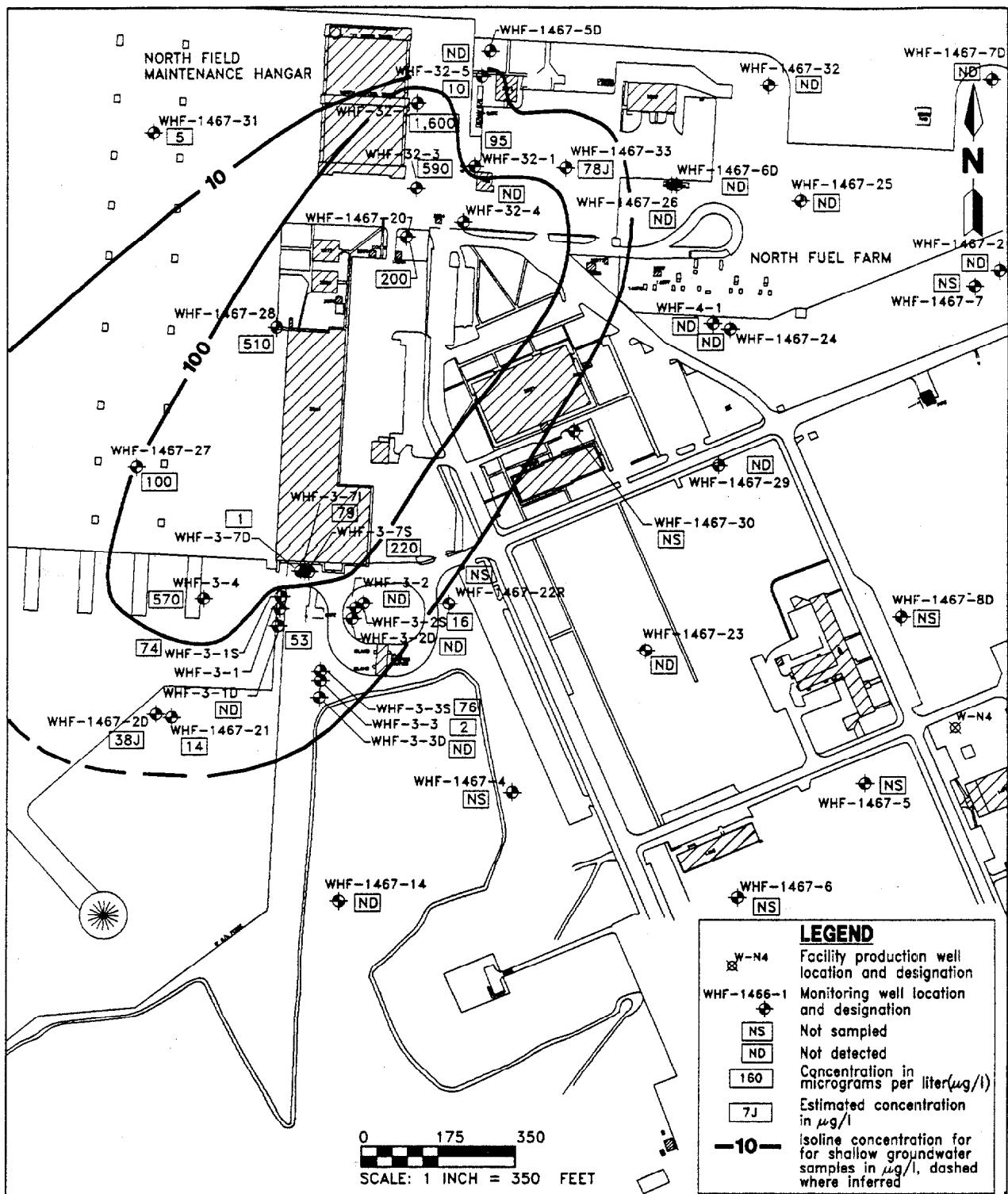
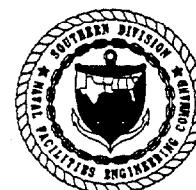


FIGURE 4-2
TRICHLOROETHENE
ISOCONCENTRATION MAP,
NORTH FIELD INDUSTRIAL AREA

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WhF-RIFS.TM5
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REMEDIAL INVESTIGATION (RI)
PROGRAM PHASE II A
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GROUNDWATER ASSESSMENT
NAS WHITING FIELD
MILTON, FLORIDA

Table 4-11
Summary Analytical Results for Organic Compounds Detected in Groundwater Samples at Site 5

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Well Identifier:	Shallow Monitoring Wells					Background Screening Criteria	Federal/State Standards
	WHF-5-8S	WHF-5-9S	WHF-5-9S DUP	WHF-5-10S	WHF-5-3		
ABB-ES Sample Identifier:	WHF5-8B	WHF5-9B	WHF5-9BA	WHF5-10B	WHF5-3		
Collect Date:	30-NOV-93	01-DEC-93	01-DEC-93	19-NOV-93	02-DEC-93		
Laboratory Sample No.:	90253001	90257001	90257002	90242001	90265002		
Volatile Organic Compounds ($\mu\text{g/l}$)							
Chloromethane	--	--	--	1 J	--	ND	NA/ ³ 2.7
Acetone	--	86	87	--	42	ND	NA/ ³ 700
Trichloroethene	--	--	--	--	6 J	ND	¹ 5/ ¹ 3
Tetrachloroethene	5 J	--	--	--	--	ND	¹ 5/ ¹ 3
Benzene	--	--	--	--	32	8	¹ 5/ ¹ 1
Toluene	--	--	--	--	--	26	¹ 1,000/ ¹ 1,000, ² 40
Xylenes (total)	--	--	--	--	--	ND	¹ 10,000/ ¹ 10,000, ² 20
Semivolatile Organic Compounds ($\mu\text{g/l}$)							
bis(2-Ethylhexyl)phthalate	--	36	27	--	--	ND	¹ 6/ ¹ 6
Pesticides and Polychlorinated Biphenyls ($\mu\text{g/l}$)							
None detected							
See notes at end of table.							

Table 4-11 (Continued)

**Remedial Investigation and Feasibility Study, Phase IIA
Technical Memorandum No. 5, Groundwater Assessment
NAS Whiting Field, Milton, Florida**

Well Identifier: ABB-ES Sample Identifier: Collect Date: Lab Sample No.	Deep Monitoring Wells				Background Screening Criteria	Federal/State Standards
	WHF-5-OW-1 WHF5-OW1	WHF-5-8 WHF5-8D	WHF-5-9D WHF5-9D	WHF-5-10D WHF5-10D		
90256001	90359001	90253002	90240003			
Volatile Organic Compounds ($\mu\text{g/l}$)						
Chloromethane	--	--	--	--	ND	NA/ ³ 2.7
Acetone	--	--	--	--	ND	NA/ ³ 700
Trichloroethene	--	1 J	--	1 J	ND	¹ 5/ ³ 3
Tetrachloroethene	--	--	--	--	ND	¹ 5/ ³ 3
Benzene	--	--	--	--	8	¹ 5/ ¹ 1
Toluene	--	6 J	--	--	26	¹ 1,000/ ¹ 1,000, ² 40
Xylenes (total)	--	1 J	--	--	ND	¹ 10,000/ ¹ 10,000, ² 20
Semivolatile Organic Compounds ($\mu\text{g/l}$)						
bis(2-Ethylhexyl)phthalate	--	1 J	--	2 J	ND	¹ 6/ ¹ 4
Pesticides and Polychlorinated Biphenyls ($\mu\text{g/l}$)						
None detected						

collected from monitoring well WHF-5-10D. None of the remaining groundwater samples collected from the deep monitoring wells at Site 5 contained VOCs. None of the VOCs were detected at concentrations exceeding Federal or State Primary or Secondary MCLs.

Semivolatile Organic Compounds. Bis(2-ethylhexyl)phthalate was the only SVOC detected in groundwater samples collected at Site 5. Bis(2-ethylhexyl)phthalate was detected in groundwater samples collected from one shallow monitoring well WHF-5-9S (and the duplicate sample WHF-5-9S DUP) and two deep groundwater samples (WHF-5-8D and WHF-5-10D). The concentration of bis(2-ethylhexyl)phthalate detected in the groundwater sample collected from monitoring well WHF-5-9S exceeded the Federal and State Primary MCL of 6 $\mu\text{g/l}$.

Pesticides and PCBs. No pesticides or PCB compounds were detected in groundwater samples collected at Site 5.

Inorganic Analytes. Table 4-12 summarizes the analytical results for inorganic analytes detected in groundwater samples collected from Site 5 monitoring wells.

Shallow Monitoring Wells. Twenty-two inorganic analytes were detected in groundwater samples collected from shallow monitoring wells at Site 5. Nine of the inorganic analytes, including antimony, arsenic, barium, cadmium, calcium, magnesium, mercury, silver, sodium, and zinc, were detected at concentrations exceeding the background screening criteria.

Eight inorganic analytes (aluminum, antimony, cadmium, chromium, iron, lead, manganese, and mercury) were detected at concentrations exceeding Federal and State Primary MCLs. Aluminum and iron were detected in each of the groundwater samples at concentrations exceeding Federal and State Secondary MCLs (200 and 300 $\mu\text{g/l}$, respectively). Antimony was detected in groundwater samples from two of three shallow monitoring wells at concentrations exceeding the Federal and State Primary MCLs (6 $\mu\text{g/l}$). Cadmium was detected in two of three groundwater samples at concentrations exceeding the Federal and State Primary MCL of 5 $\mu\text{g/l}$. Chromium, lead, manganese, and mercury were detected as single occurrences at concentrations that either met or exceeded the Federal and State Standards. The MCLs for chromium, lead, manganese, and mercury are 100 $\mu\text{g/l}$ (Primary MCL), 15 $\mu\text{g/l}$ (treatment technique), 50 $\mu\text{g/l}$ (Secondary MCL), and 2 $\mu\text{g/l}$ (Primary MCL), respectively.

Intermediate Depth Monitoring Wells. Twelve inorganic analytes were detected in the groundwater sample collected from the intermediate monitoring well WHF-5-3. Cadmium, calcium, and mercury were detected in the groundwater sample collected from monitoring well WHF-5-3 at concentrations exceeding the background screening criteria. Cadmium also was detected at a concentration exceeding the Federal and State Primary MCL of 5 $\mu\text{g/l}$.

Deep Monitoring Wells. Twenty inorganic analytes were detected in groundwater samples collected from the deep monitoring wells at Site 5. Five of the analytes, including arsenic, cadmium, selenium, silver, and sodium, were detected at concentrations exceeding the background screening criteria. Four of the analytes were detected at concentrations exceeding the Federal and State Primary MCLs.

Table 4-12
Summary Analytical Results for Inorganic Parameters Detected in Groundwater Samples at Site 5

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Well Identifier:	Shallow Monitoring Wells					Intermediate Monitoring Well	Background Screening Criteria	Federal/State Standards
	WHF-5-8S	WHF-5-9S	WHF-5-9S DUP	WHF-5-10S	WHF-5-3			
ABB-ES Sample Identifier:	WHF5-8B	WHF5-9B	WHF5-9BA	WHF5-10B	WHF5-3			
Collect Date:	30-NOV-93	01-DEC-93	01-DEC-93	19-NOV-93	02-DEC-93			
Laboratory Sample No.:	90253001	90257001	90257002	90242001	90265002			
Metals and Cyanide (µg/l)								
Aluminum	29,900	952 J	1,890 J	746	189 J	53,360		² 200/ ¹ 200
Antimony	23 J	22.5 J	--	--	--	ND		¹ 6/ ¹ 6
Arsenic	3.6 J	--	--	--	--	ND		¹ 50/ ¹ 50
Barium	636	62.1 J	64.5 J	47.2 J	92 J	126.8		¹ 2,000/ ¹ 2,000
Beryllium	2.9 J	--	--	--	--	3.6		¹ 4/ ¹ 4
Cadmium	6.1	--	--	32.6	29.7	ND		¹ 5/ ¹ 5
Calcium	7,590	3,310 J	2,380 J	2,760 J	15,400	4,700		NA/NA
Chromium	123	--	--	12.2	--	872		¹ 100/ ¹ 100
Cobalt	8.8 J	--	--	--	--	20.7		NA/NA
Copper	55.3	--	--	5.9 J	2.5 J	67.6	TT 1,300	² 1,000/ ¹ 1,000
Iron	34,800	3,260 J	5,740 J	1,070	180	80,066		² 300/ ¹ 300
Lead	30.5	2.7 J	2.8 J	3.1	3.6	20.6	TT 15	/ ¹ 15
Magnesium	6,170	1,530 J	1,610 J	1,060 J	1,320 J	2,922		NA/NA
Manganese	109	8.1	38.9	13.7 J	33.3	188		² 50/ ¹ 50
Mercury	--	--	--	2	0.84	0.32		¹ 2/ ¹ 2
Nickel	27.2 J	--	--	--	--	744		¹ 100/ ¹ 100
Potassium	4,110 J	--	--	8,300	--	17,270		NA/NA
Selenium	--	--	--	--	--	ND		¹ 50/ ¹ 50
Silver	4.4 J	--	--	--	--	ND		² 100/ ¹ 100
Sodium	11,400	4,610 J	4,380 J	9,850	2,580 J	5,740		NA/ ¹ 160,000
Vanadium	117	--	17.5 J	2.8 J	--	335		NA/NA
Zinc	308	455	246	36.8	23.8	140		² 5,000/ ¹ 5,000
Cyanide	--	--	--	2 J	--	4.2		¹ 200/ ¹ 200

See notes at end of table.

Well Identifier: ABB-ES Sample Identifier:	Deep Monitoring Well				Background Screening Criteria	Federal/State Standards
	WHF-5-OW-1 WHF5-OW1	WHF-5-8D WHF5-8D	WHF-5-9D WHF5-9D	WHF-5-10D WHF5-10D		
Collect Date:	01-DEC-93	21-JAN-94	30-NOV-93	18-NOV-93		
Laboratory Sample No.:	90256001	90359001	90253002	90240003		
Metals and Cyanide ($\mu\text{g/L}$) (Continued)						
Aluminum	1,440	4,340	359	444	53,360	² 200/ ¹ 200
Antimony	-	--	--	--	ND	¹ 6/ ¹ 6
Arsenic	1.7 J	--	--	--	ND	¹ 50/ ¹ 50
Barium	42.5 J	75.7 J	19.6 J	31.4 J	126.8	¹ 2,000/ ¹ 2,000
Beryllium	-	0.34 J	--	--	3.6	¹ 4/ ¹ 4
Cadmium	4.5 J	6.4	3.4 J	5 J	ND	¹ 5/ ¹ 5
Calcium	4,680 J	4,040 J	1,520 J	2,410 J	4,700	NA/NA
Chromium	7.4 J	7.6 J	6.5 J	--	872	¹ 100/ ¹ 100
Cobalt	9.2 J	--	6.2 J	4.4 J	20.7	NA/NA
Copper	6.1 J	4.6 J	5.5 J	4 J	67.6	TT 1,300 ² 1,000/ ² 1,000
Iron	3,600	4,000	1,140	791 J	80,066	² 300/ ² 300
Lead	4.3	8.2	1.5 J	2.1 J	20.6	TT 15/ ¹ 15
Magnesium	1,210 J	1,180 J	434 J	844 J	2,922	NA/NA
Manganese	124	171	86.4	108	188	² 50/ ² 50
Mercury	-	--	--	--	0.32	¹ 2/ ¹ 2
Nickel	-	--	--	--	744	¹ 100/ ¹ 100
Potassium	11,000	1,500 J	1,060 J	706 J	17,270	NA/NA
Selenium	-	--	--	2.2 J	ND	¹ 50/ ¹ 50
Silver	-	--	3.8 J	--	ND	² 100/ ² 100
Sodium	2,940 J	14,800	3,040 J	6,510	5,740	NA/ ¹ 160,000

See notes at end of table.

Table 4-12 (Continued) Summary Analytical Results for Inorganic Parameters Detected in Groundwater Samples at Site 5						
Remedial Investigation and Feasibility Study, Phase IIA Technical Memorandum No. 5, Groundwater Assessment NAS Whiting Field, Milton, Florida						
	Deep Monitoring Well				Background Screening Criteria	Federal/State Standards
	WHF-5-OW-1	WHF-5-8D	WHF-5-9D	WHF-5-10D		
Well Identifier:	WHF-5-OW-1	WHF-5-8D	WHF-5-9D	WHF-5-10D		
ABB-ES Sample Identifier:	WHF5-OW1	WHF5-8D	WHF5-9D	WHF5-10D		
Collect Date:	01-DEC-93	21-JAN-94	30-NOV-93	18-NOV-93		
Laboratory Sample No.:	90256001	90359001	90253002	90240003		
Metals and Cyanide ($\mu\text{g/l}$) (Continued)						
Vanadium	5.7 J	6.4 J	--	3.3 J	335	NA/NA
Zinc	32.8	17.1 J	12.2 J	12.9 J	140	² 5,000/ ² 5,000
Cyanide	--	--	--	2.7 J	4.2	¹ 200/ ¹ 200

¹ Primary maximum contaminant level (MCL).² Secondary MCL.³ Groundwater Guidance Concentration.

Notes: ABB-ES = ABB Environmental Services, Inc.

MCLs = maximum contaminant levels.

 $\mu\text{g/l}$ = micrograms per liter.

█ = concentration meets or exceeds Federal or State primary or secondary MCLs.

J = estimated concentration.

-- = compound was not detected above instrument detection limits.

ND = compound not detected in background sample.

NA = no applicable standard currently exists.

TT = treatment techniques.

The analytes and the MCLs exceeded are as follows: aluminum, Federal and State Secondary MCL ($200 \mu\text{g/l}$); cadmium, Federal and State MCLs Primary ($5 \mu\text{g/l}$); iron, Federal and State Secondary MCL ($300 \mu\text{g/l}$); and manganese, Federal and State Secondary MCLs ($50 \mu\text{g/l}$).

Field Parameter Results. The field parameter results are presented in Table 4-3. The pH values for groundwater samples collected at Site 5 ranged from 4.56 to 6.3 SU. The pH values were below the lower range for the Florida secondary drinking water requirements of 6.5 SU. The temperature measurements ranged from 21.7 to 22.8 °C, and the specific conductance ranged from 24 to 78 $\mu\text{mhos/cm}$.

Turbidity measurements ranged from 8.86 to 1,641 NTUs. All groundwater samples had turbidity measurements above the Florida public water supply treatment technique criteria of 5 NTUs.

Site 6, South Transformer Oil Disposal Area. Groundwater samples were collected from two shallow (water table) monitoring wells and one deep monitoring well at Site 6. Table 4-13 summarizes the analytical results for the groundwater samples collected at Site 6.

Volatile Organic Compounds. Five VOCs, including chloromethane, 1,1-dichloroethene, 1,2-dichloroethene, 1,1,1-trichloroethane, and trichloroethene, were detected in groundwater samples collected from the monitoring wells.

Shallow Monitoring Wells. Four of the five VOCs (excluding chloromethane) were detected in both of the groundwater samples collected from shallow monitoring wells. Chloromethane was only detected in the groundwater sample collected from monitoring well WHF-6-1S. The detected concentration exceeded the Florida Groundwater Guidance concentration of $2.7 \mu\text{g/l}$. 1,1-Dichloroethene and trichloroethene were detected in both groundwater samples collected from shallow monitoring wells at concentrations exceeding the Federal and State Primary MCLs. The Federal and State Primary MCL for 1,1-dichloroethene is $7 \mu\text{g/l}$. For trichloroethene, the Federal Primary MCL is $5 \mu\text{g/l}$ and the State Primary MCL is $3 \mu\text{g/l}$.

Deep Monitoring Wells. Chloromethane ($1 \text{ J } \mu\text{g/l}$) was the only VOC detected in the groundwater sample collected from the deep monitoring well WHF-6-1D. Currently, no Federal or State MCLs exist for chloromethane, and the detected concentration did not exceed the Florida Groundwater Guidance concentration value.

Semivolatile Organic Compounds. Bis(2-ethylhexyl)phthalate was the only SVOC detected in groundwater samples collected at Site 6. The compound was detected in groundwater samples collected from both the shallow and deep monitoring wells at the site. Bis(2-ethylhexyl)phthalate was not detected in the background groundwater samples from the site. In both samples from shallow monitoring wells, detected concentrations of bis(2-ethylhexyl)phthalate exceeded the Federal and State MCLs of $6 \mu\text{g/l}$.

Pesticides and PCBs. Dieldrin was the only pesticide or PCB compound detected in groundwater samples collected at Site 6. The compound was detected in groundwater samples collected from two shallow monitoring wells but not the groundwater sample from deep monitoring well WHF-6-1D. There are currently no Federal or State MCLs for dieldrin and the detected concentrations did not exceed the Florida Groundwater Guidance concentration value.

Table 4-13

Summary Analytical Results for Organic Compounds Detected in Groundwater Samples at Site 6

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Well Identifier: ABB-ES Sample Identifier:	Shallow Monitoring Well		Deep Monitoring Well	Background Screening Criteria	Federal/State Standards
	WHF-6-1S WHF6-1B	WHF-6-3 WHF6-3	WHF-6-1D WHF6-1D		
Collect Date:	18-NOV-93	18-NOV-93	17-NOV-93		
Laboratory Sample No.:	90240001	90240002	90236004		
Volatile Organic Compounds ($\mu\text{g/l}$)					
Chloromethane	^b 1 J/6 J	--	1 J	ND	NA/ ^b 2.7
1,1-Dichloroethene	^a 18/18 J	^a 18/23 J	--	ND	^a 7/ ^a 7
1,2-Dichloroethene (total)	^b 5 J/-	^b 7 J/6 J	--	ND	^a 70/ ^a 70
1,1,1-Trichloroethane	^b 4 J/-	^b 10/9 J	--	ND	^a 200/ ^a 200
Trichloroethene	^a 500/500	^a 440/44	--	ND	^a 5/ ^a 3
Semivolatile Organic Compounds ($\mu\text{g/l}$)					
bis(2-Ethylhexyl)phthalate	12	9 J	5 J	ND	^a 6/ ^a 6
Pesticides and Polychlorinated Biphenyls ($\mu\text{g/l}$)					
Dieldrin	^b 0.038 J/0.47 J	0.04 J	--	ND	NA/ ^b 0.1
Inorganic Analytes ($\mu\text{g/l}$)					
Aluminum	18,400	9,580	21 J	53,360	200/ ^a 200
Barium	118 J	59.6 J	15.7 J	126.8	^a 2,000/ ^a 2,000
Beryllium	0.73 J	0.47 J	--	3.6	^a 4/ ^a 4
Cadmium	7.1	13.1	--	ND	^a 5/ ^a 5
Calcium	40,700	33,200	899 J	4,706	NA/NA
Chromium	61.2	36.2	--	872	^a 100/ ^a 100
Cobalt	8.6 J	5.5 J	--	20.7	NA/NA
Copper	34.1	16.4 J	2.7 J	67.6	TT 1,300, ^a 1,000/ ^a 1,000
Iron	21,000	15,800	41 J	80,066	^a 300/ ^a 300
Lead	24	6	--	20.6	TT 15/ ^a 15
Magnesium	2,670 J	2,370 J	482 J	2,922	NA/NA
Manganese	264	45.1	20.2	188	^a 50/ ^a 50

See notes at end of table.

Table 4-13 (Continued)
Summary Analytical Results for Organic Compounds Detected in Groundwater Samples at Site 6

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Well Identifier:	Shallow Monitoring Well		Deep Monitoring Well	Background Screening Criteria	Federal/State Standards
	WHF-6-1S	WHF-6-3			
ABB-ES Sample Identifier:	WHF6-1B	WHF6-3	WHF6-1D		
Collect Date:	18-NOV-93	18-NOV-93	17-NOV-93		
Laboratory Sample No.:	90240001	90240002	90236004		

Volatile Organic Compounds ($\mu\text{g/l}$)

Manganese	264	45.1	20.2	188	² 50/ ¹ 50
Nickel	40	17.4 J	--	744	¹ 100/ ¹ 100
Potassium	16,800	8,110	--	17,270	NA/NA
Selenium	--	3.2 J	--	4	¹ 50/ ¹ 50
Sodium	7,610	4,220 J	2,500 J	5,740	NA/ ¹ 160,000
Vanadium	75.5	46.9 J	--	335	NA/ ³ 49
Zinc	64.5	59.8	5.4 J	140	² 5,000/ ² 5,000
Cyanide	2 J	--	--	4.2	¹ 200/ ¹ 200

¹ Primary maximum contaminant level (MCL)

² Secondary MCL.

³ Groundwater Guidance Concentration.

⁴ cis-1,2-Dichloroethene was used for comparison.

⁵ Second value from diluted sample analysis.

⁶ Second value from sample reanalysis.

Notes: ABB-ES = ABB Environmental Services, Inc.

MCLs = maximum contaminant levels.

$\mu\text{g/l}$ = micrograms per liter.

J = estimated concentration.

ND = compound not detected in background sample.

NA = no applicable standard currently exists.

████ = concentration meets or exceeds Federal or State MCLs or MCLGs.

-- = compound was not detected above instrument detection limits.

TT = treatment techniques.

Inorganic Analytes.

Shallow Monitoring Wells. Nineteen inorganic analytes were detected in groundwater samples collected from monitoring wells at Site 6. Five of the analytes, including cadmium, calcium, lead, manganese and sodium, were detected at concentrations exceeding background screening criteria. Five analytes, including aluminum, cadmium, iron, lead, and manganese, were detected at concentrations exceeding Federal and State Primary or Secondary MCLs.

Deep Monitoring Wells. Nine analytes, including aluminum, barium, calcium, copper, iron, magnesium, manganese, sodium, and zinc, were detected in the groundwater sample collected from deep monitoring well WHF-6-1D. None of the analytes were detected at concentrations exceeding either the background screening criteria or Federal and State Primary or Secondary MCLs.

Field Parameter Results. The field parameter results are presented in Table 4-3. The pH values for groundwater samples collected at Site 6 ranged from 4.45 to 5.61 SU. The pH values were below the lower range for the Florida secondary drinking water criteria of 6.5 SU. The temperature measurements ranged from 22 to 22.5 °C, and the specific conductance ranged from 22 to 60 μ hos/cm.

Turbidity measurements ranged from 17.08 to 1,069 NTUs. All of the groundwater samples had turbidity measurements above the Florida public water supply treatment technique criteria of 5 NTUs.

Site 33, Midfield Maintenance Hangar. Groundwater samples were collected from five shallow monitoring wells located at Site 33. Table 4-14 summarizes organic and inorganic analytes detected in groundwater samples collected at the site.

Volatile Organic Compounds. Four VOCs, including chloromethane, 1,1-dichloroethene, 1,2-dichloroethene (total), and trichloroethene, were detected in the groundwater samples. Trichloroethene was detected in groundwater samples collected from each of the monitoring wells at Site 33 except WHF-33-5. 1,1-Dichloroethene and 1,2-dichloroethane were detected in groundwater samples from three of the monitoring wells and chloromethane was detected in two of the groundwater samples.

All detected concentrations of trichloroethene exceeded the Federal and State Primary MCLs of 5 and 3 μ g/l, respectively. In addition, the concentration of 1,1-dichloroethene detected in the groundwater sample collected from monitoring well WHF-33-3 exceeded the Federal and State Primary MCL of 7 μ g/l.

Semivolatile Organic Compounds. Bis(2-ethylhexyl)phthalate was the only SVOC detected in the groundwater samples collected at Site 33. The compound was detected as a single occurrence in the groundwater sample from monitoring well WHF-33-3 at a concentration below the Federal and State Primary MCL of 6 μ g/l.

Pesticides and PCBs. Two pesticide compounds, heptachlor epoxide and gamma-Chlordane, were detected as single occurrences in the groundwater samples collected at Site 33. Both compounds were detected in the same sample. Neither compound was detected at concentrations exceeding Federal or State MCLs. The Federal and State Primary MCL for heptachlor epoxide is 0.2 μ g/l. Currently, no Federal or State MCLs exist for gamma-Chlordane.

Table 4-14
Summary Analytical Results for Groundwater Samples at Site 33

Remedial Investigation and Feasibility Study, Phase IIA
Technical Memorandum No. 5, Groundwater Assessment
NAS Whiting Field, Milton, Florida

Well Identifier: ABB-ES Sample Identifier:	Shallow Monitoring Wells						Background Screening Criteria	Federal/State Standards
	WHF-33-1	WHF-33-1DUP	WHF-33-2	WHF-33-3	WHF-33-4	WHF-33-5		
Collect Date:	10-JAN-94	10-JAN-94	14-DEC-93	10-JAN-94	14-DEC-93	14-DEC-93		
Laboratory Sample No.:	90320003	90320004	90291002	90320002	90291003	90291001		
Volatile Organic Compounds (µg/l)								
Chloromethane	-	-	1 J/-	3 J/-	--	--	ND	NA/ ³ 2.7
1,1-Dichloroethene	2 J	2 J	⁶ 3 J/3 J	⁶ 9 J/10 J	--	--	ND	¹ 7/ ¹ 7
1,2-Dichloroethene (total)	2 J	2 J	⁶ 1 J/-	⁶ 5 J/6 J	--	--	ND	^{1,4} 70/ ^{1,4} 70
Trichloroethene	120	120	⁶ 190/190	⁶ 470/470	12	--	ND	¹ 5/ ¹ 3
Semivolatile Organic Compounds (µg/l)								
bis(2-Ethylhexyl)phthalate	-	-	--	1 J	--	--	ND	¹ 6/ ¹ 6
Pesticides and Polychlorinated Biphenyls (µg/l)								
Heptachlor epoxide	-	--	--	--	--	0.035 J	ND	¹ 0.2/ ¹ 0.2
gamma-Chlordane	-	--	--	--	--	0.031 J	ND	NA/NA
Inorganic Analytes (µg/l)								
Aluminum	10,700	8,490	4,360	4,770	5,550	45,700	53,360	² 200/ ² 200
Barium	87.6 J	89.5 J	75.7 J	38.7 J	82.4 J	109 J	126.8	¹ 2,000/ ¹ 2,000
Beryllium	0.55 J	0.55 J	-	--	--	0.24 J	30.6	¹ 4/ ¹ 4
Cadmium	6.4	6.7	4.5 J	20.4	6	19.4	ND	¹ 5/ ¹ 5
Calcium	2,560 J	2,870 J	3,890 J	3,300 J	2,380 J	2,800 J	4,706	NA/NA
Chromium	22.7	20.5	11.8	18.7	14.2	61.9	872	¹ 100/ ¹ 100
Cobalt	--	4.8 J	2.1 J	--	--	4.5 J	20.7	NA/NA
Copper	9.9 J	11.2 J	7.7 J	5.8 J	9.4 J	27.2 J	67.6	TT 1,300 ² 1,000/ ² 1,000
Iron	17,500	18,100	3,570	8,050	3,920	28,300	80,066	² 300/ ² 300
Lead	4.8	5.6	13.4	2.6 J	3.4	8.6	20.6	TT 15/ ¹ 15
Magnesium	1,970 J	2,160 J	1,850 J	1,390 J	2,200 J	1,880 J	2,922	NA/NA
Manganese	27.1	29.5	41.3	25.7	19.6	120	188	² 50/ ² 50
Nickel	16.1 J	12.7 J	--	--	--	12.6 J	744	¹ 100/ ¹ 100

See notes at end of table.

Table 4-14 (Continued)
Summary Analytical Results for Groundwater Samples at Site 33

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Well Identifier:	Shallow Monitoring Wells						Background Screening Criteria	Federal/State MCLs
	WHF-33-1	WHF-33-1DUP	WHF-33-2	WHF-33-3	WHF-33-4	WHF-33-5		
ABB-ES Sample Identifier:	WHF33-1	WHF33-1A	WHF33-2	WHF33-3	WHF33-4	WHF33-5		
Collect Date:	10-JAN-94	10-JAN-94	14-DEC-93	10-JAN-94	14-DEC-93	14-DEC-93		
Laboratory Sample No.:	90320003	90320004	90291002	90320002	90291003	90291001		
Inorganic Analytes ($\mu\text{g/l}$) (Continued)								
Potassium	1,250 J	1,050 J	1,720 J	833 J	1,260 J	2,070 J	17,270	NA/NA
Sodium	2,960 J	3,390 J	4,460 J	4,150 J	3,140 J	2,970 J	5,740	NA/ ¹ 160,000
Thallium	--	--	--	6 J	--	--	ND	¹ 2/ ² 2
Vanadium	64.9	72.1	11.6 J	27 J	13.7 J	61.3	335	NA/NA
Zinc	31.2	38.1	35.8	18.5 J	33.1	148	140	² 5,000/ ² 5,000
Cyanide	1.8 J	1.9 J	--	2 J	--	--	4.2	¹ 200/ ¹ 200

¹ Primary maximum contaminant level (MCL).

² Secondary MCL.

³ Groundwater Guidance Concentration.

⁴ cis 1,2-Dichloroethene was used for comparison.

⁵ Second value from diluted sample analysis.

Notes: ABB-ES = ABB Environmental Services, Inc.

MCLs = maximum contaminant levels.

$\mu\text{g/l}$ = micrograms per liter.

-- = compound was not detected above instrument detection limits.

J = estimated concentration.

ND = compound not detected in background sample.

NA = no applicable standard currently exists.

■ = concentration meets or exceeds Federal or State Primary or Secondary MCLs.

TT = treatment techniques.

Inorganic Analytes. Nineteen inorganic analytes were detected in groundwater samples collected from shallow monitoring wells at Site 33. Three of the analytes (cadmium, thallium, and zinc) were detected at concentrations exceeding the background screening criteria. Five of the analytes (aluminum, cadmium, iron, manganese, and thallium) were detected at concentrations exceeding Federal and State Primary or Secondary MCLs.

Field Parameter Results. The field parameter results are presented in Table 4-3. The pH values for groundwater samples collected at Site 33 ranged from 4.5 to 5.22 SU's. The pH values were below the lower range for the Florida secondary drinking water requirements of 6.5 SU's. The temperature measurements ranged from 20.1 to 22.4 °C, and the specific conductance ranged from 28 to 68 µmhos/cm.

Turbidity measurements ranged from 832 to 1,984 NTUs. All of the Site 33 groundwater samples had turbidity measurements above the Florida public water supply treatment technique criteria of 5 NTUs.

To assist in review and interpretation of groundwater data from monitoring wells, isoconcentration maps for trichloroethene, which was detected at the Midfield Hangar Area, were completed. Figure 4-3 presents the isoconcentration contour map for concentrations of trichloroethene detected in groundwater samples collected from shallow monitoring wells completed in the sand-and-gravel aquifer at the Midfield Hangar Area.

South Field Industrial Area. This site grouping includes Site 7, South AVGAS Tank Sludge Disposal Area; Site 8, AVGAS Fuel Spill Area; Site 29, Auto Hobby Shop; and Site 30, South Field Maintenance Hangar. Site 7 was previously investigated under the UST program as Site 1466, and the results of the investigation were presented in the jurisdiction assessment report (ABB-ES, 1994); in addition, these data will be included in the RI/FS Phase IIA Site 7 results.

Site 7 South AVGAS Tank Sludge Disposal Area. Groundwater samples were collected from nine shallow monitoring wells and two intermediate depth monitoring wells. A groundwater sample was collected from monitoring well WHF-7-1 during the UST investigation in August 1993 and the well was resampled for the IR program in December 1993. The results for both sampling events are presented in this document.

Volatile Organic Compounds. Table 4-15 presents a summary of the organic compounds detected in groundwater samples collected at Site 7. Thirteen VOCs were detected in groundwater samples collected from Site 7 including vinyl chloride, methylene chloride, acetone, 1,1-dichloroethene, 1,2-dichloroethene (total), chloroform, 2-butanone, carbon tetrachloride, trichloroethene, and BTEX.

Shallow Monitoring Wells. Ten VOCs (vinyl chloride, methylene chloride, acetone, 1,2-dichloroethene [total], chloroform, trichloroethene, and BTEX) were detected in the groundwater samples collected from the shallow monitoring wells at Site 7. Trichloroethene was detected in each groundwater sample except WHF-1466-17. The detected concentrations of trichloroethene ranged from 2 J to 1,400 µg/l. However, it should be noted that trichloroethene was detected in the groundwater sample collected from monitoring well WHF-7-1 at a concentration of 230 J µg/l during the August 1993 sampling event but was not detected in the groundwater sample collected in December 1993. 1,2-Dichloroethene was detected in five of the groundwater samples at concentrations ranging from 2 J to 170 J µg/l.

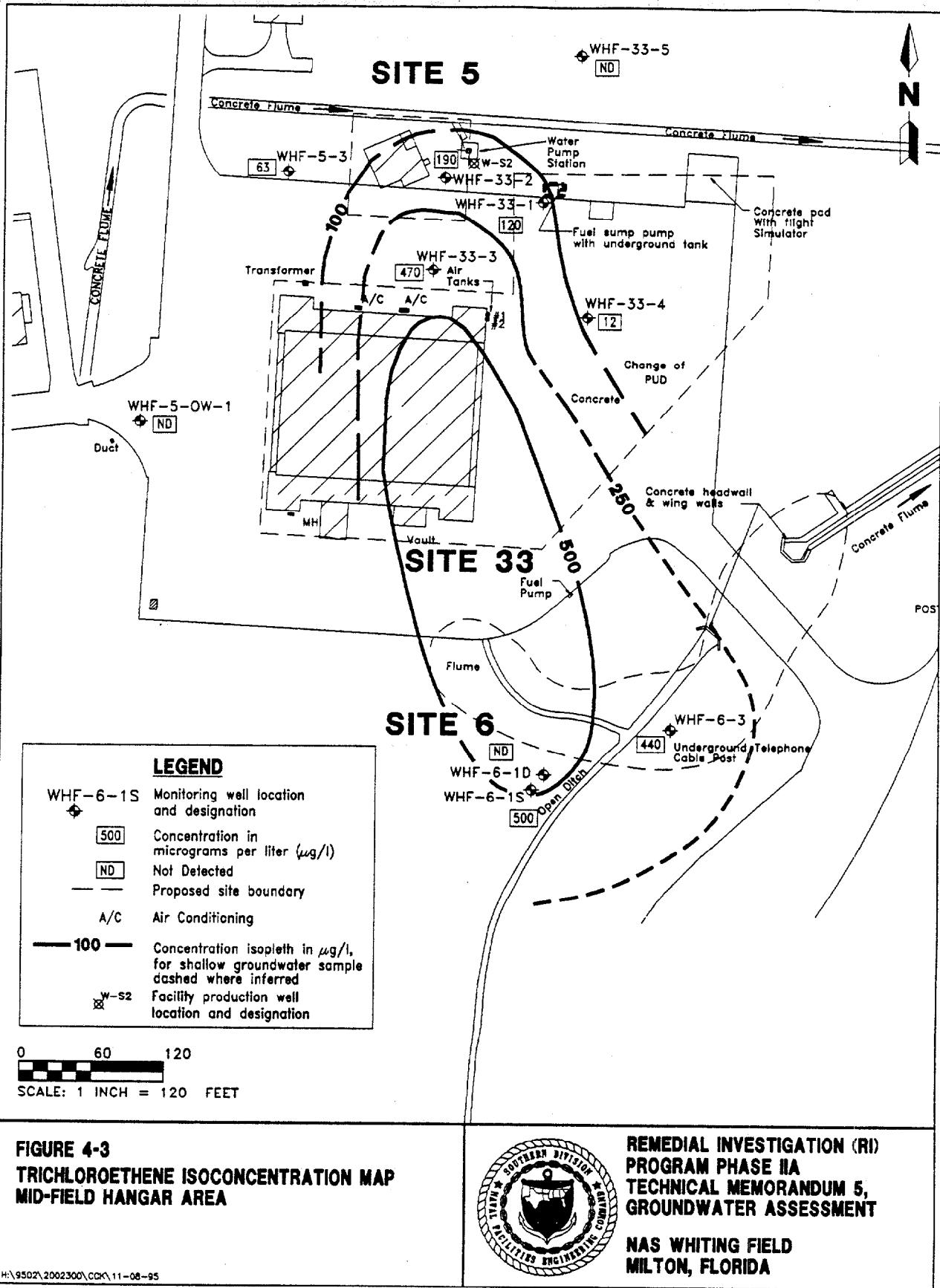


Table 4-15
Summary Analytical Results for Organic Compounds Detected in Groundwater Samples at Site 7 (UST 1466)

**Remedial Investigation and Feasibility Study, Phase II A
Technical Memorandum No. 5, Groundwater Assessment
NAS Whiting Field, Milton, Florida**

Table 4-15 (Continued)
Summary Analytical Results for Organic Compounds Detected in Groundwater Samples at Site 7 (UST 1466)

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Well Identifier:	Shallow Monitoring Wells					Intermediate Monitoring Wells		Background Screening Criteria	Federal/State Standards
	WHF-1466-19 DUP	WHF-1466-20	WHF-1466-20 DUP	WHF-7-1	WHF-7-1	WHF-1466-1D	WHF-1466-3D		
ABB-ES Sample Identifier:	WHFDUP1	WHF146620	WHFDUP2	WHF71	WHF7-1	WHF14661D	WHF14663D		
Collect Date:	18-AUG-93	19-AUG-93	19-AUG-93	18-AUG-93	02-DEC-93	26-AUG-93	29-AUG-93		
Lab Sample No.	90098005	90101001	90101003	90098004	90265003	90121001	90128002		
Volatile Organic Compounds $\mu\text{g/l}$									
Vinyl chloride	-	-	-	190 J	-	-	-	ND	¹ 2/ ¹ 1
Methylene chloride	-	-	-	-	-	-	-	ND	¹ 5/ ¹ 5
Acetone	-	-	-	-	91 J	-	-	ND	NA/NA
1,1-Dichloroethene	-	-	-	-	-	5 J	2 J	ND	¹ 7/ ¹ 7
1,2-Dichloroethene (total)	-	-	-	170 J	17 J	-	-	ND	¹ , ⁶ 70/ ¹ , ⁶ 70
Chloroform	-	-	-	-	-	-	-	ND	¹ 100/ ³ 6
2-Butanone	-	-	-	-	-	54	-	ND	NA/NA
Carbon tetrachloride	-	-	-	-	-	1 J	-	ND	¹ 5/ ¹ 3
Trichloroethene	2 J	7 J	7 J	230 J	-	65	10	ND	¹ 5/ ¹ 3
Benzene	1 J	7 J	7 J	7,400	*6,700/6,700	-	-	8	¹ 5/ ¹ 1
Toluene	2 J	2 J	2 J	39,000	*47,000/47,000	-	-	26	¹ ,000/ ¹ ,000, ² 40
Ethylbenzene	-	4 J	4 J	2,400	*1,800/1,800	-	-	ND	¹ 700/ ¹ 700, ² 30
Xylenes (total)	-	23	22	4,400	*3,500/3,500 J	-	-	ND	¹ 10,000/ ¹ 10,000, ² 20
Total BTEX	3	36	35	53,200	*69,000/69,000	-	-	34	NA/ ⁴ 50
Semivolatile Organic Compounds $\mu\text{g/l}$									
Phenol	-	-	-	53 J	150	-	-	ND	NA/ ³ 10
2-Methylphenol	-	-	-	140	400	-	-	ND	NA/ ³ 350
4-Methylphenol	-	-	-	150	390	-	-	ND	NA/ ³ 35
2,4-Dimethylphenol	-	-	-	21 J	40 J	-	-	ND	NA/NA
Naphthalene	-	-	-	-	9 J	-	-	ND	NA/ ³ 6.8
Carbazole	-	-	-	9 J	10 J	-	-	ND	NA/ ³ 7.5
bis(2-Ethylhexyl)-phthalate	1 J	-	-	-	-	-	-	ND	¹ 6/ ¹ 6

See notes at end of table.

Table 4-15 (Continued)
Summary Analytical Results for Organic Compounds Detected in Groundwater Samples at Site 7 (UST 1466)

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Well Identifier:	Shallow Monitoring Wells					Intermediate Monitoring Wells		Background Screening Criteria	Federal/State Standards
	WHF-1466-19 DUP	WHF-1466-20 DUP	WHF-1466-20 DUP	WHF-7-1	WHF-7-1	WHF-1466-1D	WHF-1466-3D		
ABB-ES Sample Identifier:	WHFDUP1	WHF146620	WHFDUP2	WHF71	WHF7-1	WHF14661D	WHF14663D		
Collect Date:	18-AUG-93	19-AUG-93	19-AUG-93	18-AUG-93	02-DEC-93	26-AUG-93	29-AUG-93		
Lab Sample No.	90098005	90101001	90101003	90098004	90265003	90121001	90128002		
Pesticides and Polychlorinated Biphenyls ($\mu\text{g/l}$)									
None detected									
1 Primary maximum contaminant level (MCL).									
2 Secondary MCL.									
3 Groundwater Guidance Concentration.									
4 Florida petroleum cleanup action level.									
5 cis 1,2-dichloroethene was used for comparison.									
6 Second value from sample readings.									
Notes: ABB-ES = ABB Environmental Services, Inc. MCLs = maximum contaminant levels. $\mu\text{g/l}$ = micrograms per liter.									
-- = compound was detected above instrument detection limits. ND = compound not detected in background sample. J = estimated concentration. NA = no applicable standard currently exists.									
■ = concentration meets or exceeds Federal or State primary or secondary MCLs.									
BTEX = benzene, toluene, ethylbenzene, and xylenes.									

Methylene chloride was detected in three groundwater samples, acetone was detected in two groundwater samples, and vinyl chloride and chloroform were detected as single occurrences. BTEX (total) were detected in eight of the groundwater samples at concentrations ranging from 1 to 59,000 $\mu\text{g/l}$.

Seven of the VOCs (vinyl chloride, 1,2-dichloroethene [total], trichloroethene, benzene, toluene, ethylbenzene, and xylenes [total]) were detected in the groundwater samples collected from shallow monitoring wells at concentrations exceeding the Federal and State Primary MCLs. Vinyl chloride and 1,2-dichloroethene were detected as single occurrences at concentrations exceeding Federal and State Primary MCLs of 2 $\mu\text{g/l}$ and 1 $\mu\text{g/l}$ for vinyl chloride, respectively, and the Federal and State Primary MCL of 70 $\mu\text{g/l}$ for 1,2-dichloroethene. Trichloroethene was detected in nine of the groundwater samples from five of the monitoring wells at concentrations exceeding the Federal and State Primary MCLs of 5 and 3 $\mu\text{g/l}$, respectively. Benzene was detected in seven of the groundwater samples at concentrations that meet or exceed the State Primary MCL of 1 $\mu\text{g/l}$. Both toluene and ethylbenzene were detected in groundwater samples from two monitoring wells at concentrations exceeding the Federal and State Primary MCLs. Xylene was detected in a single groundwater sample at concentrations exceeding the Federal and State Primary MCL of 10,000 $\mu\text{g/l}$ and as a single occurrence at a concentration exceeding the State Secondary MCL of 20 $\mu\text{g/l}$. In addition, total values for BTEX, which were detected in groundwater samples from three of the monitoring wells, exceed the State UST cleanup criteria of 50 $\mu\text{g/l}$.

Intermediate Depth Monitoring Wells. Groundwater samples were collected from two intermediate monitoring wells at Site 7. Four VOCs including 1,1-dichloroethene, 2-butanone, carbon tetrachloride, and trichloroethene were detected in groundwater samples collected from the intermediate depth monitoring wells at Site 7. These four compounds were detected in the groundwater sample from monitoring well WHF-1466-1D. The VOCs 1,1-dichloroethene and trichloroethene were detected in the groundwater sample from monitoring well WHF-1466-3D. Trichloroethene was the only VOC that exceeded the Federal and State Primary or Secondary MCLs. The Federal and State Primary MCLs for trichloroethene are 5 and 3 $\mu\text{g/l}$, respectively.

Semivolatile Organic Compounds. Seven SVOCs, including phenol, 2-methylphenol, 4-methylphenol, 2,4-dimethylphenol, naphthalene, carbazole, and bis(2-ethylhexyl)-phthalate, were detected in groundwater samples collected from Site 7.

Shallow Monitoring Wells. The seven SVOCs were detected in the groundwater samples collected from the shallow monitoring wells at Site 7. Five of the groundwater samples (WHF-1466-13, WHF-1466-15, WHF-1466-17, WHF-1466-20, and WHF-DUP2) from shallow monitoring wells did not contain any SVOCs, and three of the samples (WHF-1466-15, WHF-1466-19 and WHFDUP1) contained only the compound bis(2-ethylhexyl)phthalate. None of the detected concentrations of SVOCs exceeded Federal or State Primary or Secondary MCLs. However, detected concentrations of phenol, 2-methylphenol, 4-methylphenol, naphthalene, and carbazole exceeded the Florida Groundwater Guidance concentrations.

Intermediate Depth Monitoring Wells. No SVOCs were detected in the groundwater samples collected from intermediate depth monitoring wells at Site 7.

Pesticides and PCBs. No pesticide or PCB compounds were detected in groundwater samples collected from monitoring wells at Site 7.

Inorganic Analytes. Table 4-16 summarizes the analytical results for the inorganic analytes detected in the groundwater samples collected from Site 7. Twenty-two inorganic analytes were detected in the groundwater samples. Cyanide analysis was conducted only for the sample collected from monitoring well WHF-7-1 during the IR program sampling event. The physical parameters of pH, specific conductance, and temperature were not measured during the UST groundwater sampling program.

Shallow Monitoring Wells. Twenty-two inorganic analytes were detected in the groundwater samples collected from shallow monitoring wells at Site 7. Eleven of the analytes, including antimony, arsenic, cadmium, calcium, cobalt, lead, magnesium, manganese, potassium, selenium, and sodium, were detected at concentrations exceeding the background screening criteria. Six of the analytes, including aluminum, antimony, cadmium, iron, lead, and manganese, were detected at concentrations exceeding the Federal and State Primary or Secondary MCLs.

Intermediate Depth Monitoring Wells. Sixteen inorganic analytes were detected in groundwater samples collected from the intermediate depth monitoring wells at Site 7. Four inorganic analytes (cadmium, calcium, potassium, and sodium) were detected at concentrations exceeding the background screening criteria. Two analytes (aluminum and iron) were detected at concentrations exceeding the Federal and State Secondary MCLs. The Federal and State Secondary MCLs for aluminum and iron are 200 $\mu\text{g/l}$ and 300 $\mu\text{g/l}$, respectively.

Site 29, The Auto Hobby Shop Table 4-17 summarizes the analytical results for groundwater samples collected at Site 29. Only shallow monitoring wells were installed and sampled at the site.

Volatile Organic Compounds. Two VOCs, acetone and 4-methyl-2-pentanone, were detected in the groundwater samples collected from shallow monitoring wells at Site 29. Both compounds were detected in the groundwater sample (and a duplicate sample) from monitoring well WHF-29-3. Currently, no Federal or State Primary or Secondary MCLs exist for these compounds, however, the State of Florida has established Groundwater Guidance Concentration of 700 $\mu\text{g/l}$ for acetone and 350 $\mu\text{g/l}$ for 4-methyl-2-pentanone. The detected concentrations did not exceed the guidance concentration values.

Semivolatile Organic Compounds. SVOCs were not detected in groundwater samples from Site 29.

Pesticides and PCBs. Pesticides and PCB compounds were not detected in groundwater samples from Site 29.

Inorganic Analytes. Twenty-one inorganic analytes were detected in groundwater samples collected from shallow monitoring wells at Site 29. Nine of the analytes, including antimony, arsenic, barium, cadmium, iron, lead, mercury, silver, and sodium, were detected at concentrations exceeding background screening criteria. Concentrations of seven of the analytes, including aluminum, antimony, cadmium, chromium, iron, lead, and manganese, exceeded the Federal and State Primary or Secondary MCLs.

Field Parameter Results. Field parameter results are presented in Table 4-3. The pH values for groundwater samples collected at Site 29 ranged from 4.59 to 5.31 SUs. The pH values were below the lower range for the Florida secondary drinking water criteria of 6.5 SUs. The temperature measurements ranged from 22 to 24.5 °C, and the specific conductance ranged from 59 to 69 $\mu\text{mhos/cm}$.

Table 4-16
Summary Analytical Results for Inorganic Parameters Detected in Groundwater Samples from Site 7 (Underground Storage Tank [UST])
Site 1486)

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Well Identifier:	Shallow Monitoring Wells							Background Screening Criteria	Federal/State Standards
	WHF-1466-1	WHF-1466-13	WHF-1466-15	WHF-1466-16	WHF-1466-17	WHF-1466-18	WHF-1466-19		
ABB-ES Sample Identifier:	WHF14661	WHF146613	WHF146615	WHF146616	WHF146617	WHF146618	WHF146619		
Collect Date:	28-AUG-93	19-AUG-93	28-AUG-93	28-AUG-93	29-AUG-93	26-AUG-93	18-AUG-93		
Laboratory Sample No.:	90127006	90101002	90127005	90127004	90128001	90121002	90098003		
Metals and Cyanide ($\mu\text{g/l}$)									
Aluminum	1,130	1,240	3,980 J	1,810 J	1,780	7,370 J	2,500	53,360	² 200/ ² 200
Antimony	15.6 J	12.6 J	--	13.4 J	--	--	--	ND	¹ 6/ ¹ 6
Arsenic	9.9 J	--	--	--	20.3	6.7 J	--	ND	¹ 50/ ¹ 50
Barium	48.6 J	37 J	82.6 J	39.4 J	61.6 J	50.7 J	55.4 J	126.8	¹ 2,000/ ¹ 2,000
Beryllium	--	--	0.39 J	0.25 J	--	0.25 J	--	3.6	¹ 4/ ¹ 4
Cadmium	--	22.3	5.9	--	3.6 J	--	32	ND	¹ 5/ ¹ 5
Calcium	1,350 J	1,580 J	26,900	3,800 J	29,600	10,400	8,530	4,706	NA/NA
Chromium	--	--	8.5 J	9.5 J	--	26.5	13.8	872	¹ 100/ ¹ 100
Cobalt	--	6.8 J	--	--	--	--	7.9 J	20.7	NA/NA
Copper	9.1 J	--	13.2 J	14.1 J	17.8 J	29.9	15 J	67.6	² 100/ ² 1,000
Iron	42,500	2,450	3,420	9,320	7,660	21,700	9,050	80,066	² 300/ ² 300
Lead	6.9	9.4	5.6	4.5	1.8 J	29.4	4.9	20.6	TT 15/ ¹ 15
Magnesium	1,600 J	891 J	1,190 J	782 J	974 J	2,550 J	1,240 J	2,922	NA/NA
Manganese	678	15.7	16.2	9.5 J	21	210	53.2	188	² 50/ ² 50
Mercury	0.08 J	--	0.05 J	0.05 J	--	0.1 J	0.15 J	0.32	¹ 2/ ¹ 2
Nickel	--	--	--	--	--	13.3 J	9.4 J	744	² 100/ ² 100
Potassium	--	2,450 J	1,910 J	2,710 J	4,000 J	3,060 J	2,530 J	17,270	NA/NA
Selenium	--	--	--	--	--	--	--	4	¹ 50/ ¹ 50
Silver	--	--	--	--	--	--	--	ND	² 100/ ² 100
Sodium	3,850 J	4,450 J	3,480 J	3,530 J	6,250	7,660	5,650	5,740	NA/ ¹ 160,000
Vanadium	--	10.6 J	9.1 J	8.6 J	4.4 J	36.4 J	35.1 J	335	NA/ ³ 49
Zinc	45	95.5	46.8	56.6	28.3 J	186	74.6	140	² 5,000/ ² 5,000

See notes at end of table.

Table 4-16 (Continued)
Summary Analytical Results for Inorganic Parameters Detected in Groundwater Samples from Site 7
(Underground Storage Tank [UST] Site 1486)

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Well Identifier:	Shallow Monitoring Wells					Intermediate Monitoring Wells		Background Screening Criteria	Federal/State Standards
	WHF-1466-19 DUP	WHF-1466-20 DUP	WHF-1466-20 DUP	WHF-7-1	WHF-7-1	WHF-1466-1D	WHF-1466-3D		
ABB-ES Sample Identifier:	WHDUP1	WHDUP2	WHDUP2	WHDUP1	WHDUP1	WHDUP1	WHDUP1	ND	'6/'6
Collect Date:	18-AUG-93	19-AUG-93	19-AUG-93	18-AUG-93	02-DEC-93	26-AUG-93	29-AUG-93	ND	'50/'50
Lab Sample No.	90098005	90101001	90101003	90098004	90265003	90121001	90128002	ND	NA/NA
Metals and Cyanide ($\mu\text{g/l}$)									
Aluminum	2,310	583	1,320	-	81.5 J	2,100 J	2,910	53,360	² 200/ ² 200
Antimony	-	-	15.7 J	-	27.9 J	-	-	ND	'6/'6
Arsenic	-	-	-	29.3	25.4	-	-	ND	'50/'50
Barium	51 J	37.3 J	36.2 J	112 J	109 J	27.4 J	43 J	126.8	¹ 2,000/ ¹ 2,000
Beryllium	-	-	-	-	-	-	-	3.6	'4/'4
Cadmium	29.4	12.5	10.4	8	3.4 J	-	4.6 J	3.2	'5/'5
Calcium	7,190	3,460 J	3,580 J	27,400	29,600	18,700	13,100	4,706	NA/NA
Chromium	--	--	--	--	4.8 J	9.4 J	20.6	872	¹ 100/ ¹ 100
Cobalt	9.4 J	5.8 J	7.9 J	39.2 J	18.1 J	-	2 J	20.7	NA/NA
Copper	-	-	-	-	13.5 J	19.6 J	18.4 J	67.6	² 100/ ² 1,000
Iron	8,630	4,720	6,470	41,200	38,800	3,970	3,800	80,066	² 300/ ² 300
Lead	9.4	2.9 J	2.9 J	1,290	730	5.2	9.5	20.6	TT 15/ ¹ 15
Magnesium	1,170 J	1,200 J	1,150 J	7,010	8,080	978 J	450 J	2,922	NA/NA
Manganese	50	29.6	28.8	725	672	22.3	10.4 J	188	² 50/ ² 50
Mercury	--	--	--	0.05 J	--	--	--	0.32	'2/'2
Nickel	14.8 J	--	--	19.6 J	15 J	11.7 J	11.9 J	744	² 100/ ² 100
Potassium	2,310 J	1,320 J	1,400 J	1,820 J	2,070 J	6,320	84,800	17,270	NA/NA
Selenium	--	--	--	2.1 J	3 J	--	--	4	'50/'50
Silver	--	--	--	--	6.6 J	--	--	ND	² 100/ ² 100

See notes at end of table.

Table 4-16 (Continued)
Summary Analytical Results for Inorganic Parameters Detected in Groundwater Samples from Site 7
(Underground Storage Tank [UST] Site 1486)

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Well Identifier:	Shallow Monitoring Wells					Intermediate Monitoring Wells		Background Screening Criteria	Federal/State Standards
	WHF-1466-19	WHF-1466-20	WHF-1466-20	WHF-7-1	WHF-7-1	WHF-1466-1D	WHF-1466-3D		
ABB-ES Sample Identifier:	DUP	DUP	DUP						
Collect Date:	WHFDUP1	WHF146620	WHFDUP2	WHF71	WHF7-1	WHF14661D	WHF14663D		
Lab Sample No.	18-AUG-93	19-AUG-93	19-AUG-93	18-AUG-93	02-DEC-93	26-AUG-93	29-AUG-93		
	90098005	90101001	90101003	90098004	90265003	90121001	90128002		
Metals and Cyanide ($\mu\text{g/l}$)									
Sodium	5,450	5,620	5,320	4,060 J	4,350 J	3,710 J	10,000	5,740	NA/160,000
Vanadium	31.8 J	6.4 J	17 J	--	--	11.2 J	26.7 J	335	NA/ ² 49
Zinc	111	128	124	63.4	14.4 J	113	50.8 J	140	² 5,000/ ² 5,000

¹ Primary maximum contaminant level (MCL).

² Secondary MCL.

³ Groundwater Guidance Concentration.

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Notes: ABB-ES = ABB Environmental Services, Inc.

MCLs = maximum contaminant levels.

$\mu\text{g/l}$ = micrograms per liter.

J = estimated concentration.

ND = compound not detected in background sample.

NA = no applicable standard currently exists.

■ = concentration meets or exceeds Federal or State Primary or Secondary MCLs.

-- = compound was not detected above instrument detection limits.

TT = treatment techniques.

Table 4-17
Summary Analytical Results for Groundwater Samples at Site 29

Remedial Investigation and Feasibility Study, Phase II A
Technical Memorandum No. 5, Groundwater Assessment
NAS Whiting Field, Milton, Florida

Well Identifier:	Shallow Monitoring Wells						Background Screening Criteria	Federal/State Standards
	WHF-29-1	WHF-29-2	WHF-29-3	WHF-29-3DUP	WHF-29-4	WHF-29-5		
ABB-ES Sample Identifier:	WHF29-1	WHF29-2	WHF29-3	WHF29-3A	WHF29-4	WHF29-5		
Collect Date:	07-DEC-93	08-DEC-93	08-DEC-93	08-DEC-93	08-DEC-93	07-DEC-93		
Laboratory Sample No.:	90278002	90280002	90280003	90280004	90280005	90278001		
Volatile Organic Compounds ($\mu\text{g/l}$)								
Acetone	--	-	33 J	24 J	--	--	ND	NA/ ³ 700
4-Methyl-2-pentanone	--	-	64	65	--	--	ND	NA/ ³ 350
Semivolatile Organic Compounds ($\mu\text{g/l}$)								
None detected								
Pesticides and Polychlorinated Biphenyls ($\mu\text{g/l}$)								
None detected								
Inorganic Analytes ($\mu\text{g/l}$)								
Aluminum	32,400	49,400	5,590	5,060	3,320	4,480	53,360	² 200/ ¹ 200
Antimony	-	13.9 J	-	-	-	--	ND	¹ 6/ ¹ 6
Arsenic	-	3 J	5.6 J	3.9 J	1.3 J	--	ND	¹ 50/ ¹ 50
Barium	96.2 J	127 J	31.2 J	32.7 J	46 J	115 J	126.8	¹ 2,000/ ¹ 2,000
Beryllium	0.97 J	0.36 J	--	--	--	--	3.6	¹ 4/ ¹ 4
Cadmium	5.4	4.7 J	8.1	4.5 J	-	7.2	ND	¹ 5/ ¹ 5
Calcium	1,830 J	2,640 J	1,630 J	1,770 J	2,280 J	2,030 J	4,706	NA/NA
Chromium	96	173	47.4	41.2	99.5	32.8	872	¹ 100/ ¹ 100
Cobalt	6.8 J	6 J	-	-	--	5.7 J	20.7	NA/NA
Copper	29.4	42.6	14.4 J	17.4 J	17.6 J	8.5 J	67.6	TT 1,300 ² 1,000/ ¹ 1,000
Iron	104,000	31,900	11,200	12,000	10,700	4,130	80,066	² 300/ ¹ 300
Lead	12.6	16.6	32.4	4.4	4	4.1	20.6	TT 15/ ¹ 15
Magnesium	2,070 J	2,400 J	1,060 J	1,090 J	1,430 J	2,680 J	2,922	NA/NA
Manganese	67.1	82.7	19.8	19.8	27	19.6	188	² 50/ ¹ 50

See notes at end of table.

Table 4-17 (Continued)
Summary Analytical Results for Groundwater Samples at Site 29

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Well Identifier:	Shallow Monitoring Wells						Background Screening Criteria	Federal/ State MCLs
	WHF-29-1	WHF-29-2	WHF-29-3	WHF-29-3DUP	WHF-29-4	WHF-29-5		
ABB-ES Sample Identifier:	WHF29-1	WHF29-2	WHF29-3	WHF29-3A	WHF29-4	WHF29-5		
Collect Date:	07-DEC-93	08-DEC-93	08-DEC-93	08-DEC-93	08-DEC-93	07-DEC-93		
Laboratory Sample No.:	90278002	90280002	90280003	90280004	90280005	90278001		
Volatile Organic Compounds ($\mu\text{g/l}$) (Continued)								
Mercury	0.3	1.2	0.14 J	--	0.18 J	--	0.32	¹ 2/ ² 12
Nickel	20.7 J	75.1	33.3 J	27.6 J	79.8	22.3 J	744	¹ 100/ ¹ 100
Potassium	8,770	1,580 J	--	--	--	1,450 J	17,270	NA/NA
Silver	5.8 J	--	--	--	--	4.2 J	ND	² 100/ ² 100
Sodium	9,100	5,770	3,500 J	3,530 J	4,260 J	3,790 J	5,740	NA/ ¹ 160,000
Vanadium	130	104	31.3 J	35.4 J	25.4 J	17.7 J	335	NA/NA
Zinc	71.2	133	45.2	44.8	80.1	13.7 J	140	² 5,000/ ² 5,000

¹ Primary maximum contaminant level (MCL).

² Secondary MCL.

³ Groundwater Guidance Concentration.

Notes: ABB-ES = ABB Environmental Services, Inc.

MCLs = maximum contaminant levels.

$\mu\text{g/l}$ = micrograms per liter.

-- = compound was not detected above instrument detection limits.

J = estimated concentration.

ND = compound not detected in background sample.

NA = no applicable standard currently exists.

= concentration meets or exceeds Federal or State Primary or Secondary MCLs or MCLGs.

TT = treatment techniques.

Turbidity measurements ranged from 584 to 5,105 NTUs. All of the groundwater samples had turbidity measurements above the Florida public water supply treatment technique criteria of 5 NTUs.

Site 30, South Field Maintenance Hangar Area. Table 4-18 summarizes the analytical results for organic compounds detected in groundwater samples from Site 30. The monitoring wells installed at Site 30 were completed as shallow monitoring wells.

Volatile Organic Compounds. Seven VOCs, including 1,1-dichloroethene, 1,2-dichloroethene (total), chloroform, trichloroethene, benzene, ethylbenzene, and xylenes (total), were detected in the groundwater samples. 1,1-Dichloroethene was detected in a groundwater sample from monitoring well WHF-30-5, and 1,2-dichloroethene (total) was detected in samples from monitoring wells WHF-30-2, WHF-30-3, and WHF-30-5. Chloroform was detected as a single occurrence (WHF-30-3) at a concentration of 4 J $\mu\text{g/l}$. Trichloroethene was detected in each groundwater sample at concentrations ranging from 71 to 620 $\mu\text{g/l}$. Benzene, ethylbenzene, and xylenes (total) were detected in the sample from monitoring well WHF-30-4.

Four of the VOCs were detected at concentrations exceeding the Federal and State Primary MCLs. 1,1-Dichloroethene was detected in sample WHF-30-5 at a concentration exceeding the Federal and State Primary MCL of 7 $\mu\text{g/l}$. Trichloroethene was detected in each of the groundwater samples at concentrations exceeding Federal and State Primary MCLs of 5 and 3 $\mu\text{g/l}$, respectively. Benzene and xylene were detected in the groundwater sample collected from monitoring well WHF-30-4 at concentrations exceeding Federal and State Primary MCLs of 5 and 1 $\mu\text{g/l}$, respectively for benzene, and the State Secondary MCL for xylene (20 $\mu\text{g/l}$).

Semivolatile Organic Compounds. SVOCs were not detected in groundwater samples from Site 30.

Pesticides and PCBs. Pesticide and PCB compounds were not detected in groundwater samples from Site 30.

Inorganic Analytes. Table 4-19 summarizes the inorganic analytes detected in groundwater samples collected at Site 30. Twenty-one inorganic analytes were detected in groundwater samples from Site 30. Concentrations of eight of the analytes, including arsenic, barium, cadmium, calcium, manganese, silver, sodium, and zinc, exceeded the background screening criteria. Five of the analytes, including aluminum, cadmium, iron, lead, and manganese, were detected at concentrations exceeding Federal and State Primary or Secondary MCLs.

Field Parameter Results. Field parameter results are presented in Table 4-3. The pH values for groundwater samples collected at Site 30 ranged from 4.54 to 5.44 SUs. The pH values were below the lower range for the Florida secondary drinking water requirements of 6.5 SUs. The temperature measurements ranged from 22 to 23.2 °C, and the specific conductance ranged from 38 to 61 $\mu\text{mhos/cm}$.

Turbidity measurements ranged from 32.1 to 632 NTUs. All of the groundwater samples had turbidity measurements above the Florida public water supply treatment technique criteria of 5 NTUs.

Table 4-18
Summary Analytical Results for Organic Compounds Detected in Groundwater Samples at Site 30

Remedial Investigation and Feasibility Study, Phase IIA
Technical Memorandum No. 5, Groundwater Assessment
NAS Whiting Field, Milton, Florida

Well Identifier:	Shallow Monitoring Wells				Background Screening Criteria	Federal/State Standards
	WHF-30-2	WHF-30-3	WHF-30-4	WHF-30-5		
ABB-ES Sample Identifier:	WHF30-2	WHF30-3	WHF30-4	WHF30-5		
Collect Date:	09-DEC-93	10-DEC-93	13-DEC-93	09-DEC-93		
Laboratory Sample No.:	90285003	90286002	90289002	90285002		
Volatile Organic Compounds ($\mu\text{g/l}$)						
1,1-Dichloroethene	--/--	--/--	--	*24/27 J	ND	¹ 7/ ² 7
1,2-Dichloroethene (total)	*22/23 J	*57/62	--	5 J/--	ND	^{1,5} 70/ ^{1,5} 70
Chloroform	--/--	4 J/--	--	--/--	ND	¹ 100/ ² 6
Trichloroethylene	*620/520	*560/560	71	*360/360	ND	¹ 5/ ² 3
Benzene	--/--	--/--	48	--/--	8	¹ 5/ ² 1
Ethylbenzene	--/--	--/--	16	--/--	ND	¹ 700/ ² 700, ² 30
Xylenes (total)	--/--	--/--	70	--/--	ND	¹ 10,000/ ¹ 10,000, ² 20
Total BTEX	--/--	--/--	134	--/--	NA	NA/50
Semivolatile Organic Compounds ($\mu\text{g/l}$)						
None detected						
Pesticides and Polychlorinated Biphenyls ($\mu\text{g/l}$)						
None detected						
1 Primary maximum contaminant level (MCL). 2 Secondary MCL. 3 Groundwater Guidance Concentration. 4 Second value is from reanalysis of diluted sample. 5 cis 1,2-Dichloroethylene was used for comparison.						
Notes: ABB-ES = ABB Environmental Services, Inc. MCLs = maximum contaminant levels. $\mu\text{g/l}$ = micrograms per liter. -- = compound was not detected above instrument detection limits. ■ = concentration meets or exceeds Federal or State Primary or Secondary MCLs. J = estimated concentration. ND = compound not detected in background sample. BTEX = benzene, toluene, ethylbenzene, and xylenes (total). NA = no applicable standard currently exists.						

Table 4-19
Summary Analytical Results for Inorganic Analytes Detected in Groundwater Samples at Site 30

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Well Identifier:	Shallow Monitoring Wells				Background Screening Criteria	Federal/State Standards
	WHF-30-2	WHF-30-3	WHF-30-4	WHF-30-5		
ABB-ES Sample Identifier:	WHF30-2	WHF30-3	WHF30-4	WHF30-5		
Collect Date:	09-DEC-93	10-DEC-93	13-DEC-93	09-DEC-93		
Laboratory Sample No.:	90285003	90286002	90289002	90285002		
Inorganic Analytes ($\mu\text{g/l}$)						
Aluminum	549	6,870	2,610	3,890	53,360	² 200/ ² 200
Arsenic	5.7 J	--	3.8 J	6.4 J	ND	¹ 50/ ¹ 50
Barium	35.9 J	129 J	21 J	41 J	126.8	¹ 2,000/ ¹ 2,000
Beryllium	--	--	--	0.18 J	3.6	¹ 4/ ¹ 4
Cadmium	5.1	31.4	3.9 J	8.7	ND	¹ 5/ ¹ 5
Calcium	700 J	34,700	758 J	7,860	4,706	NA/NA
Chromium	3.7 J	34	16.2	40.8	872	¹ 100/ ¹ 100
Cobalt	--	--	3 J	2.9 J	20.7	NA/NA
Copper	2.1 J	24.2 J	7.7 J	45.4	67.6	TT 1,300 ² 1,000/ ² 1,000
Iron	1,530	9,450	15,000	18,500	80,066	² 300/ ² 300
Lead	--	4	18.4	2 J	20.6	TT 15/ ¹ 15
Magnesium	928 J	1,220 J	987 J	1,110 J	2,922	NA/NA
Manganese	5.8 J	40.9	43.6	42.9	188	² 50/ ² 50
Nickel	5.1 J	9.5 J	6.2 J	31.4 J	744	¹ 100/ ¹ 100
Potassium	932 J	3,880 J	1,540 J	2,640 J	17,270	NA/NA
Selenium	--	--	1.6 J	--	4	¹ 50/ ¹ 50
Silver	--	--	--	2.2 J	ND	² 100/ ² 100
Sodium	4,280 J	6,830	4,330 J	3,770 J	5,740	NA/ ¹ 160,000

See notes at end of table.

Table 4-19 (Continued) Summary Analytical Results for Inorganic Analytes Detected in Groundwater Samples at Site 30						
Remedial Investigation and Feasibility Study, Phase IIA Technical Memorandum No. 5, Groundwater Assessment NAS Whiting Field, Milton, Florida						
Well Identifier:	Shallow Monitoring Wells				Background Screening Criteria	Federal/State Standards
	WHF-30-2	WHF-30-3	WHF-30-4	WHF-30-5		
ABB-ES Sample Identifier:	WHF30-2	WHF30-3	WHF30-4	WHF30-5		
Collect Date:	09-DEC-93	10-DEC-93	13-DEC-93	09-DEC-93		
Laboratory Sample No.:	90285003	90286002	90289002	90285002		
Inorganic Analytes ($\mu\text{g/l}$) (Continued)						
Vanadium	7.8 J	38.5 J	24.9 J	45.2 J	335	NA/NA
Zinc	12 J	32	20 J	276	140	² 5,000/ ¹ 5,000
Cyanide	1.4 J	--	--	--	4.2	¹ 200/ ¹ 200

¹ Primary maximum contaminant level (MCL)
² Secondary MCL.
³ Groundwater Guidance Concentration.

Notes: ABB-ES = ABB Environmental Services, Inc.
 MCLs = maximum contaminant levels.
 $\mu\text{g/l}$ = micrograms per liter.
 -- = compound was not detected above instrument detection limits.
 J = estimated concentration.
 ND = compound not detected in background sample.
 NA = no applicable standard currently exists.
 = concentration meets or exceeds Federal or State Primary or Secondary MCLs.
 TT = treatment techniques.

To assist in the review and interpretation of groundwater data from monitoring wells, isoconcentration maps of BTEX and trichloroethene were made for the South Field Hangar Area. Figure 4-4 presents an isoconcentration contour map for the petroleum compounds BTEX (total values), which were detected in groundwater samples collected from shallow monitoring wells completed within the sand-and-gravel aquifer at the South Field Industrial Area. Figure 4-5 presents the isoconcentration contour lines for concentrations of trichloroethene detected in groundwater samples from the same area and aquifer zone.

4.3.3.2 Perimeter Road Area The results of the chemical analyses of groundwater samples collected from the Perimeter Road area will be presented and interpreted according to three RI/FS site groupings: Northwest Disposal and Crash Crew Training Area (Sites 1, 2, 17, and 18), Southeast Disposal Area (Sites 9, 10, 11, 12, 13, and 14), and Southwest Disposal Area (Sites 15 and 16).

Northwest Disposal and Crash Crew Training Area

Site 1, Northwest Disposal Area. Table 4-20 presents the analytical results for groundwater samples collected at Site 1.

Volatile Organic Compounds. No VOCs were detected in any of the groundwater samples collected at Site 1.

Semivolatile Organic Compounds. No SVOCs were detected in any of the groundwater samples collected at Site 1.

Pesticides and Polychlorinated Biphenyls. The pesticide compound beta-benzene hexachloride was detected in groundwater samples collected from one shallow and one intermediate depth monitoring well (WHF-1-1S and WHF-1-1, respectively) at Site 1. Currently, no Federal or State Primary or Secondary MCLs exist for the compound. However, the State of Florida has established a groundwater guidance concentration for the analyte. The detected concentrations of the analyte did not exceed the groundwater guidance concentration value.

Inorganic Analytes. Nineteen inorganic analytes were detected in groundwater samples collected from monitoring wells at Site 1.

Shallow Monitoring Wells. Ten inorganic analytes, including aluminum, beryllium, chromium, copper, iron, lead, manganese, mercury, silver, and vanadium, were detected in groundwater samples at concentrations exceeding the background screening criteria. Seven of the analytes including aluminum, beryllium, chromium, iron, lead, manganese, and nickel were detected at concentrations exceeding the Federal and State Primary or Secondary MCLs.

Intermediate Depth Monitoring Wells. Eleven inorganic analytes were detected in the groundwater samples collected from the intermediate depth monitoring well at Site 1. None of the detected concentrations exceeded the background screening criteria or the Federal or State MCLs.

Field Parameter Results. Field parameter results are presented in Table 4-3. The pH values for groundwater samples collected at Site 1 ranged from 4.58 to 5.04 SUs. The pH values were below the lower range for the Florida secondary drinking water requirements of 6.5 SUs. The temperature measurements ranged from 22 to

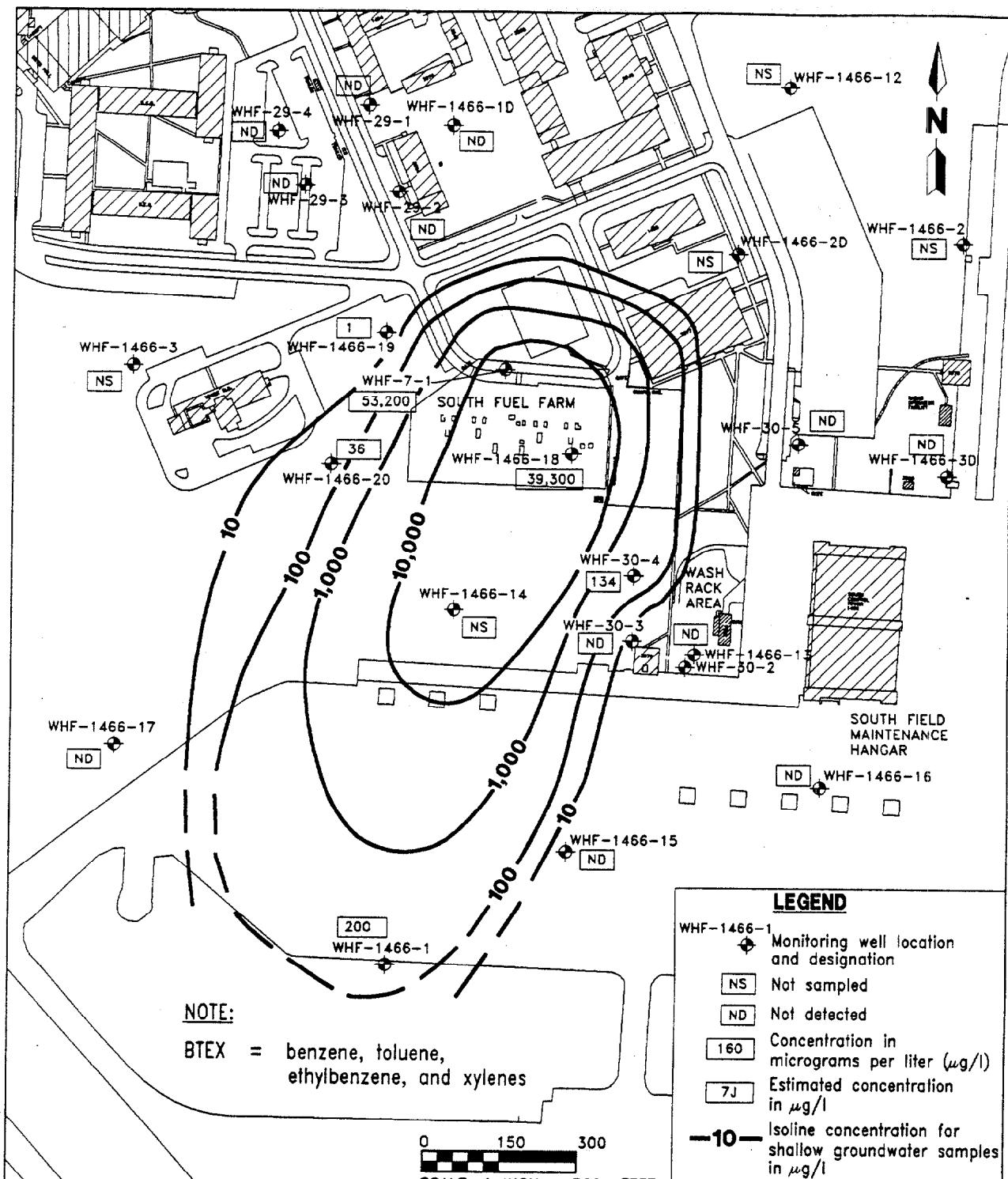


FIGURE 4-4
BTEX ISOCONCENTRATION MAP,
SOUTH FIELD INDUSTRIAL AREA

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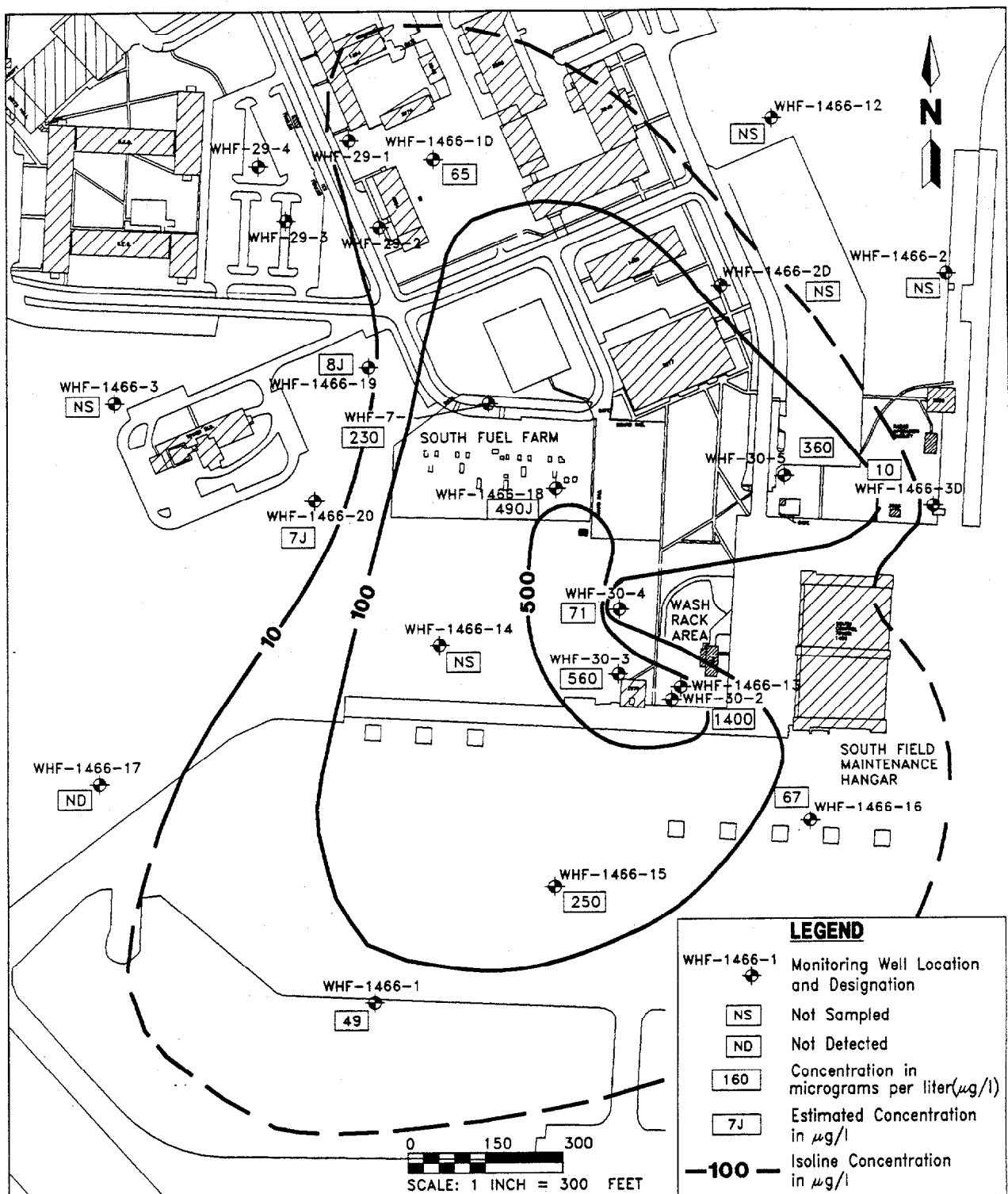


FIGURE 4-5
TRICHLOROETHENE ISOCONCENTRATION MAP,
SOUTH FIELD INDUSTRIAL AREA

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WhF-RIFS.TMS
ASW.11.95



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Table 4-20
Summary Analytical Results for Groundwater Samples at Site 1

Remedial Investigation and Feasibility Study, Phase IIA
Technical Memorandum No. 5, Groundwater Assessment
NAS Whiting Field, Milton, Florida

Well Identifier:	Shallow Monitoring Wells			Background Screening Criteria	Federal/State MCLs
	WHF-1-1S	WHF-1-2	WHF-1-3		
ABB-ES Sample Identifier:	WHF1-1B	WHF1-2	WHF1-3	WHF1-1	WHF1-1
Collect Date:	18-OCT-93	19-OCT-93	15-OCT-93	18-OCT-93	18-OCT-93
Laboratory Sample No.:	90177002	90178001	90175002	90177001	90177001
Volatile Organic Compounds ($\mu\text{g/l}$)					
None detected					
Semivolatile Organic Compounds ($\mu\text{g/l}$)					
None detected					
Pesticides and Polychlorinated Biphenyls ($\mu\text{g/l}$)					
beta-benzene hexachloride (BHC)	0.019 J	--	--	0.025 J	ND
Inorganic Analytes ($\mu\text{g/l}$)					
Aluminum	30,700	61,700	10,800	132 J	53,360
Barium	72.7 J	118 J	28.9 J	5.7 J	126.8
Beryllium	2.2 J	10 J	0.89 J	0.48 J	3.6
Calcium	3,120 J	1,090 J	1,300 J	1,070 J	4,706
Chromium	111	1,150	24.7	--	872
Cobalt	5.5 J	--	--	--	20.7
Copper	68.4	36.8 J	12.2 J	2.3 J	67.6
Iron	104,000	318,000	15,800	65.9 J	80,066
Lead	20.4	36.2	4.7	1.7 J	20.6
Magnesium	2,280 J	1,810 J	1,260 J	314 J	2,922
Manganese	243	374	57.4	14.8 J	188
Mercury	0.23	0.36	--	--	0.32
Nickel	13.8 J	210	--	--	744
Potassium	2,420 J	3,090 J	1,220 J	614 J	17,270
Silver	5.8 J	--	--	--	ND
Sodium	2,510 J	2,670 J	2,340 J	1,980 J	5,740
See notes at end of table.					

Table 4-20 (Continued)
Summary Analytical Results for Groundwater Samples at Site 1

Remedial Investigation and Feasibility Study, Phase II A
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Well Identifier:	Shallow Monitoring Wells			WHF-1-1	Background Screening Criteria	Federal/State MCLs
	WHF-1-1S	WHF-1-2	WHF-1-3			
ABB-ES Sample Identifier:	WHF1-1B	WHF1-2	WHF1-3	WHF1-1		
Collect Date:	18-OCT-93	19-OCT-93	15-OCT-93	18-OCT-93		
Laboratory Sample No.:	90177002	90178001	90175002	90177001		
Inorganic Analytes ($\mu\text{g/l}$) (Continued)						
Vanadium	268	1,360	77.5	--	335	NA/ ³ 49
Zinc	50	109	22.5	--	140	² 5,000/ ² 5,000
Cyanide	--	2.5 J	--	--	4.2	¹ 200/ ¹ 200

¹ Primary maximum contaminant level (MCL)
² Secondary MCL.
³ Groundwater Guidance Concentration.

Notes: ABB-ES = ABB Environmental Services, Inc.
 MCLs = maximum contaminant levels.
 $\mu\text{g/l}$ = micrograms per liter.
 -- = compound was not detected above instrument detection limits.
 J = estimated concentration.
 ND = compound not detected in background sample.
 NA = no applicable standard currently exists.
 = concentration meets or exceeds Federal or State Primary or Secondary MCLs.
 TT = treatment techniques.

23 °C, and the specific conductance ranged from 20 to 30 $\mu\text{mhos}/\text{cm}$. Turbidity measurements ranged from 3.29 to 5,888 NTUs. All of the groundwater samples except one (WHF-1-1) had turbidity measurements above the Florida public water supply treatment technique criteria of 5 NTUs.

Site 2, Northwest Open Disposal Area. One groundwater sample (and a duplicate sample) was collected from the water table monitoring well at Site 2. Table 4-21 presents the analytical results for groundwater samples collected at Site 2.

Volatile Organic Compounds. No VOCs were detected in the groundwater samples collected from monitoring wells at Site 2.

Semivolatile Organic Compounds. Bis(2-ethylhexyl)phthalate was detected in the duplicate of a groundwater sample from shallow monitoring well WHF-2-1 at Site 2 and not in the corresponding environmental sample. The detected concentration exceeded the Federal and State Primary MCL of 6 $\mu\text{g/l}$.

Pesticides and Polychlorinated Biphenyls. No pesticide or PCB compounds were detected in the groundwater samples collected from Site 2 monitoring wells.

Inorganic Analytes. Fifteen inorganic analytes were detected in the groundwater samples collected at Site 2. Silver was the only inorganic analyte detected in the groundwater sample at concentrations exceeding the background screening criteria. Three analytes, including aluminum, chromium, and iron, were detected at concentrations exceeding the Federal and State Primary or Secondary MCLs. The Federal and State MCLs for aluminum, chromium, and iron are 200 $\mu\text{g/l}$ (secondary standard), 50 $\mu\text{g/l}$ (primary standard), and 300 $\mu\text{g/l}$ (secondary standard), respectively.

Field Parameter Results. Field parameter results are presented in Table 4-3. The pH value for the groundwater sample collected at Site 2 was 5.65 SUs. This value is below the lower range for the Florida secondary drinking water criteria of 6.5 SUs. The temperature measurement was 25 °C, and the specific conductance was 30 $\mu\text{mhos}/\text{cm}$. The turbidity measurement was 1,208 NTUs, which was above the Florida public water supply treatment technique criteria of 5 NTUs.

Site 17 Crash Crew Training Area Groundwater samples were collected from three shallow and one intermediate depth monitoring well at Site 17. Table 4-22 summarizes analytical results for groundwater samples collected at the site.

Volatile Organic Compounds. No VOCs were detected in any groundwater samples collected at Site 17.

Semivolatile Organic Compounds. Bis(2-ethylhexyl)phthalate and di-n-octylphthalate were the only SVOCs detected in groundwater samples collected from shallow monitoring wells at Site 17. Both compounds were detected at estimated concentrations in the duplicate groundwater sample from monitoring well WHF-17-2. Neither compound was detected in the corresponding environmental sample. The detected concentration of bis(2-ethylhexyl)phthalate exceeded the Federal and State Primary MCL of 6 $\mu\text{g/l}$. Currently no Federal or State Primary or Secondary MCLs exist for di-n-octylphthalate; however, the State of Florida has established a groundwater guidance concentration for the compound of 140 $\mu\text{g/l}$. The detected concentration in the groundwater samples did not exceed this value.

Table 4-21
Summary Analytical Results for Groundwater Samples at Site 2

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Well Identifier: ABB-ES Sample Identifier:	Shallow Monitoring Wells		Background Screening Criteria	Federal/State Standards
	WHF-2-1	WHF-2-1DUP		
Collect Date:	19-OCT-93	19-OCT-93		
Laboratory Sample No.:	90178002	90178004		
Volatile Organic Compounds ($\mu\text{g/l}$)				
None detected				
Semivolatile Organic Compounds ($\mu\text{g/l}$)				
bis(2-Ethylhexyl)phthalate	-	7 J	ND	¹ 6/ ² 6
Pesticides and Polychlorinated Biphenyls ($\mu\text{g/l}$)				
None detected				
Inorganic Analytes ($\mu\text{g/l}$)				
Aluminum	12,700	11,200	53,360	² 200/ ² 200
Barium	60.9 J	57 J	126.8	¹ 2,000/ ¹ 2,000
Beryllium	1.4 J	1.3 J	3.2	¹ 4/ ¹ 4
Calcium	1,320 J	1,290 J	4,706	NA/NA
Chromium	163	144	872	¹ 100/ ¹ 100
Copper	39.2	34.1	67.6	TT 1,300 ² 1,000/ ² 1,000
Iron	74,200	66,500	80,066	² 300/ ² 300
Lead	5.8	4.8	20.6	TT 15/ ¹ 15
Magnesium	1,390 J	1,380 J	2,922	NA/NA
Manganese	46	42.4	188	² 50/ ² 50
Potassium	954 J	996 J	17,270	NA/NA
Silver	4.6 J	-	ND	² 100/ ² 100
Sodium	1,280 J	1,310 J	5,740	NA/ ¹ 160,000
Vanadium	169	153	335	NA/NA
Zinc	21.8	20.2	140	² 5,000/ ² 5,000

¹ Primary maximum contaminant level (MCL).

² Secondary MCL.

³ Groundwater Guidance Concentration.

Notes: ABB-ES = Environmental Services, Inc.

MCLs = maximum contaminant levels.

$\mu\text{g/l}$ = micrograms per liter.

- = compound was not detected above instrument detection limits.

████ = concentration meets or exceeds Federal or State Primary or Secondary MCLs.

J = estimated concentration.

ND = compound not detected in background sample.

NA = no applicable standard currently exists.

TT = treatment technique.

Table 4-22
Summary Analytical Results for Groundwater Samples Collected at Site 17

Remedial Investigation and Feasibility Study, Phase IIA
Technical Memorandum No. 5, Groundwater Assessment
NAS Whiting Field, Milton, Florida

Well Identifier:	Shallow Monitoring Wells				Intermediate Monitoring Well	Background Screening Criteria	Federal/State Standards
	WHF-17-1S	WHF-17-2	WHF-17-2DUP	WHF-17-3			
ABB-ES Sample Identifier:	WHF17-1B	WHF17-2	WHF17-2A	WHF17-3	WHF17-1	ND	¹ 6/ ¹ 6
Collect Date:	20-OCT-93	20-OCT-93	20-OCT-93	21-OCT-93	19-OCT-93	ND	NA/ ¹ 40
Laboratory Sample No.:	90180002	90179001	90179002	90181001	90178005		
Volatile Organic Compounds (µg/l)							
None detected							
Semivolatile Organic Compounds (µg/l)							
bis(2-Ethylhexyl)phthalate	--	--	7 J	--	--	ND	¹ 6/ ¹ 6
Di-n-octylphthalate	--	--	4 J	--	--	ND	NA/ ¹ 40
Pesticides and Polychlorinated Biphenyls (µg/l)							
beta-benzene hexachloride	--	0.017 J	--	--	--	ND	NA/NA
Inorganic Analytes (µg/l)							
Aluminum	5,630	2,080 J	1,700 J	15,400	50.9 J	53,360	² 200/ ² 200
Barium	75.7 J	34.4 J	35.4 J	35.1 J	22 J	126.8	¹ 2,000/ ¹ 2,000
Beryllium	0.2 J	--	--	2 J	0.48 J	3.6	¹ 4/ ¹ 4
Calcium	2,220 J	3,100 J	2,590 J	725 J	2,080 J	4,706	NA/NA
Chromium	74.5	13	11.8	201	--	872	¹ 100/ ¹ 100
Cobalt	6.2 J	--	4.3 J	8.4 J	--	20.7	NA/NA
Copper	11.3 J	--	--	79.1	--	67.6	TT 1,300 ² 1,000/ ² 1,000
Iron	3,760	2,300 J	2,000 J	146,000	51.4 J	80,066	² 300/ ² 300
Lead	4.8	2.7 J	2.1 J	15	--	20.6	TT 15/ ¹ 15
Magnesium	1,170 J	752 J	691 J	758 J	488 J	2,922	NA/NA
Manganese	49.7	104	105	116	3.4 J	188	² 50/ ² 50
Mercury	--	--	--	0.54	--	0.32	¹ 2/ ¹ 2
Nickel	45.7	--	--	52.4	--	744	¹ 100/ ¹ 100

See notes at end of table.

Table 4-22 (Continued)
Summary Analytical Results for Groundwater Samples Collected at Site 17

Remedial Investigation and Feasibility Study, Phase II A
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Well Identifier:	Shallow Monitoring Wells				Intermediate Monitoring Well	Background Screening Criteria	Federal/State Standards
	WHF-17-1S	WHF-17-2	WHF-17-2DUP	WHF-17-3			
ABB-ES Sample Identifier:	WHF17-1B	WHF17-2	WHF17-2A	WHF17-3	WHF17-1	WHF17-1	
Collect Date:	20-OCT-93	20-OCT-93	20-OCT-93	21-OCT-93	19-OCT-93		
Laboratory Sample No.:	90180002	90179001	90179002	90181001	90178005		
Inorganic Analytes ($\mu\text{g/l}$) (Continued)							
Potassium	1,500 J	915 J	974 J	979 J	1,950 J	17,270	NA/NA
Silver	--	--	--	7.8 J	--	ND	² 100/ ² 100
Sodium	2,930 J	3,870 J	3,450 J	2,280 J	1,650 J	5,740	NA/ ¹ 160,000
Vanadium	14.6 J	7.5 J	6.7 J	508	--	334	NA/NA
Zinc	39.5	78.4	56.6	89.5	48.5	140	² 5,000/ ² 5,000
Cyanide	--	--	1.9 J	2 J	1.7 J	4.2	² 200/ ² 200

¹ Primary maximum contaminant level (MCL).

² Secondary MCL.

³ Groundwater Guidance Concentration.

Notes: DUP = duplicate sample.

ABB-ES = ABB Environmental Services, Inc.

MCLs = maximum contaminant levels.

$\mu\text{g/l}$ = micrograms per liter.

-- = compound was not detected above instrument detection limits.

■ = concentration meets or exceeds Federal or State Primary or Secondary MCLs.

J = estimated concentration.

ND = compound not detected in background sample.

NA = no applicable standard currently exists.

TT = treatment techniques.

No SVOCs were detected in the groundwater sample collected from the intermediate depth monitoring well at Site 17.

Pesticides and Polychlorinated Biphenyls. Beta-benzene hexachloride was the only pesticide compound detected in groundwater samples collected from shallow monitoring wells at Site 17. The compound was detected in the groundwater sample from monitoring well WHF-17-2 at an estimated concentration. Currently, no Federal or State standards exist for the compound.

No pesticide or PCB compounds were detected in the groundwater sample collected from the intermediate depth monitoring well at Site 17.

Inorganic Analytes. Nineteen inorganic analytes were detected in the groundwater samples from monitoring wells at Site 17.

Shallow Monitoring Wells. Five inorganic analytes, including copper, iron, mercury, silver, and vanadium, were detected in the groundwater samples collected from shallow monitoring wells at concentrations exceeding the background screening criteria. Five analytes, including aluminum, chromium, iron, lead, and manganese, were detected at concentrations exceeding Federal and State Primary or Secondary MCLs.

Eleven inorganic analytes were detected in the groundwater sample collected from the intermediate depth monitoring well at Site 17. None of the detected concentrations exceeded background screening criteria or Federal and State MCLs.

Field Parameter Results. Field parameter results are presented in Table 4-3. The pH values for groundwater samples collected at Site 17 ranged from 4.84 to 5.28 SU. The pH values were below the lower range for the Florida secondary drinking water requirements of 6.5 SU. The temperature measurements ranged from 22.1 to 25 °C, and the specific conductance ranged from 19 to 23 µmhos/cm.

Turbidity measurements ranged from 2.58 to 1,241 NTUs. All of the groundwater samples except the one from monitoring well WHF-17-1 had turbidity measurements above the Florida public water supply treatment technique criteria of 5 NTUs.

Site 18, Crash Crew Training Area. Groundwater samples were collected from two shallow monitoring wells and one intermediate depth monitoring well at Site 18. Table 4-23 presents the analytical results for groundwater samples collected.

Volatile Organic Compounds. No VOCs were detected in the groundwater samples from the shallow or the intermediate depth monitoring wells at Site 18.

Semivolatile Organic Compounds. No SVOCs were detected in the groundwater samples collected from the shallow or the intermediate depth monitoring wells at Site 18.

Pesticides and PCBs. The compound 4,4-dichlorodiphenyltrichloroethane (DDT) was the only pesticide or PCB compound detected in groundwater samples collected from shallow and intermediate depth monitoring wells at Site 18. The compound was detected in groundwater samples collected from shallow monitoring well WHF-18-2 and from intermediate monitoring well WHF-18-1. Currently, no Federal or State MCLs exist; however, the State of Florida has established a groundwater guidance concentration of 0.1 µg/l for the compound. The concentration detected in Site 18 groundwater samples did not exceed the guidance concentration value.

Table 4-23
Summary Analytical Results for Groundwater Samples at Site 18

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

	Shallow Monitoring Wells		Intermediate Monitoring Wells	Background Screening Criteria	Federal/State Standards
	Well Identifier:	ABB-ES Sample Identifier:			
Collect Date:	21-OCT-93	WHF-18-2	WHF-18-3	WHF-18-1	
Laboratory Sample No.:	90181003	WHF18-2	WHF18-3	WHF18-1	
Volatile Organic Compounds ($\mu\text{g/l}$)					
None detected					
Semivolatile Organic Compounds ($\mu\text{g/l}$)					
None detected					
Pesticides and Polychlorinated Biphenyls ($\mu\text{g/l}$)					
4,4-Dichlorodiphenyl-trichloroethane	0.035 J	-	0.072 J	ND	NA/ ³ 0.1
Inorganic Analytes ($\mu\text{g/l}$)					
Aluminum	13,700	10,200	68.4 J	53,360	² 200/ ² 200
Arsenic	2.1 J	-	-	ND	¹ 50/ ¹ 50
Barium	64.5 J	29 J	42.7 J	126.8	¹ 2,000/ ¹ 2,000
Beryllium	0.41 J	0.82 J	-	3.6	¹ 4/ ¹ 4
Calcium	705 J	345 J	1,910 J	4,706	NA/NA
Chromium	70.8	32.6	-	872	¹ 100/ ¹ 100
Cobalt	4.5 J	--	-	20.7	NA/NA
Copper	43.5 J	-	-	67.6	TT 1,300 ² 1,000/ ² 1,000
Iron	24,800	61,800	73.2 J	80,066	² 300/ ² 300
Lead	7.4	-	-	20.6	TT 15/ ¹ 15
Magnesium	1,170 J	650 J	1,000 J	2,922	NA/NA
Manganese	74.1	31.4	6.1 J	188	² 50/ ² 50
Mercury	0.2 J	-	-	0.32	¹ 2/ ¹ 2
Nickel	28 J	15.2 J	-	744	¹ 100/ ¹ 100
Potassium	2,120 J	685 J	775 J	17,270	NA/NA
Sodium	1,430 J	1,320 J	1,670 J	5,740	NA/ ¹ 160,000
Vanadium	94.8	133	--	335	NA/NA
Zinc	461	37	29	140	¹ 5,000/ ¹ 5,000

¹ Primary maximum contaminant level (MCL).

² Secondary MCL.

³ Groundwater Guidance Concentration.

Notes: ABB-ES = ABB Environmental Services, Inc.

MCLs = maximum contaminant levels.

$\mu\text{g/l}$ = micrograms per liter.

J = estimated concentration.

- = compound was not detected above instrument detection limits.

ND = compound not detected in background sample.

████ = concentration meets or exceeds Federal or State Primary or Secondary MCLs.

NA = no applicable standard currently exists.

TT = treatment technique.

Inorganic Analytes. Eighteen inorganic analytes were detected in groundwater samples collected from the shallow monitoring wells at Site 18. Two of the analytes (arsenic and zinc) were detected at concentrations exceeding background screening criteria. Three analytes, including aluminum, iron, and manganese, were detected at concentrations exceeding the Federal and State Secondary MCLs. The Federal and State MCLs for the analytes are as follows: aluminum, 200 $\mu\text{g/l}$; iron, 300 $\mu\text{g/l}$; and manganese, 50 $\mu\text{g/l}$.

Nine inorganic analytes were detected in the groundwater sample from the intermediate depth monitoring well. None of the detected concentrations exceed either the background screening criteria or Federal or State MCLs.

Field Parameter Results. Field parameter results are presented in Table 4-3. The pH values for groundwater samples collected at Site 18 ranged from 4.45 to 4.86 SUs. The pH values were below the lower range for the Florida secondary drinking water criteria of 6.5 SUs. The temperature measurements ranged from 22 to 24.3 °C, and the specific conductance ranged from 18 to 29 $\mu\text{mhos/cm}$.

Turbidity measurements ranged from 2.97 to 1,370 NTUs. All of the groundwater samples except the one from monitoring well WHF-18-1 had turbidity measurements above the Florida public water supply treatment technique criteria of 5 NTUs.

Southeast Disposal Area This site grouping comprises six disposal areas: Site 9, Waste Fuel Disposal Pit; Site 10, Southeast Open Disposal Area (A); Site 11, Southeast Open Disposal Area (B); Site 12, Tetraethyl Lead Disposal Area; Site 13, Sanitary Landfill; and Site 14, Short-term Sanitary Landfill.

Site 9, Waste Fuel Disposal Pit Groundwater samples were collected from one shallow monitoring well and two intermediate depth monitoring wells at Site 9. Table 4-24 presents a summary of the analytical results for groundwater samples collected at the site.

Volatile Organic Compounds. No VOCs were detected in the groundwater samples collected from shallow or intermediate depth monitoring wells at Site 9.

Semivolatile Organic Compounds. No SVOCs were detected in the groundwater samples collected from shallow or intermediate depth monitoring wells at Site 9.

Pesticides and Polychlorinated Biphenyls. No pesticides or PCBs were detected in groundwater samples collected from shallow or intermediate depth monitoring wells at Site 9.

Inorganic Analytes.

Shallow Monitoring Wells. Fourteen inorganic analytes were detected in the groundwater sample collected from a single shallow monitoring well at Site 9. Two of the analytes (arsenic and calcium) were detected at concentrations exceeding background screening criteria. Two inorganic analytes (aluminum and iron) were detected at concentrations exceeding the Federal and State Secondary MCLs of 200 $\mu\text{g/l}$ and 300 $\mu\text{g/l}$ for aluminum and iron, respectively.

Intermediate Depth Monitoring Wells. Fourteen inorganic analytes were detected in the groundwater samples collected from the two intermediate monitoring wells at Site 9. Arsenic, calcium, and potassium were detected at concentrations

Table 4-24
Summary Analytical Results for Groundwater Samples at Site 9

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

	Shallow Monitoring Well	Intermediate Monitoring Wells		Background Screening Criteria	Federal/State Standards
	WHF9-3	WHF9-1	WHF9-2		
ABB-ES Sample Identifier:					
Well Identifier:	WHF-9-3	WHF-9-1	WHF-9-2		
Collect Date:	27-OCT-93	26-OCT-93	26-OCT-93		
Laboratory Sample No.:	90189001	90188001	90188002		
Volatile Organic Compounds (µg/l)					
None detected					
Semivolatile Organic Compounds (µg/l)					
None detected					
Pesticides and Polychlorinated Biphenyls (µg/l)					
None detected					
Inorganic Analytes (µg/l)					
Aluminum	3,190	231	5,846	53,360	² 200/ ² 200
Arsenic	3.2 J	—	3.1 J	ND	¹ 50/ ¹ 50
Barium	60.5 J	35.5 J	35.1 J	126.8	¹ 2,000/ ¹ 2,000
Calcium	28,600	20,400	86,000	4,706	NA/NA
Chromium	10.3	7.6 J	67.8	872	¹ 100/ ¹ 100
Copper	5 J	—	5.2 J	67.6	TT 1,300 ² 1,000/ ² 1,000
Iron	4,250	246	816	80,066	² 300/ ² 300
Lead	3.2 J	—	—	20.6	TT 15/ ¹ 15
Magnesium	433 J	199 J	197 J	2,922	NA/NA
Manganese	23.9	2.7 J	8.6 J	188	² 50/ ² 50
Nickel	—	9.3 J	—	744	¹ 100/ ¹ 100
Potassium	9,430	11,100	17,700	17,270	NA/NA
Sodium	3,520 J	3,920 J	3,850 J	5,740	NA/ ¹ 160,000
Vanadium	32.7 J	2.8 J	24.6 J	334	NA/NA
Zinc	9.7 J	13.7 J	9.8 J	140	² 5,000/ ² 5,000

¹ Primary maximum contaminant level (MCL).

² Secondary MCL.

³ Groundwater Guidance Concentration.

Notes: ABB-ES = ABB Environmental Services, Inc.

MCLs = maximum contaminant levels.

µg/l = micrograms per liter.

■ = concentration meets or exceeds Federal or State Primary or Secondary MCLs.

J = estimated concentration.

— = compound was not detected above instrument detection limits.

ND = compound not detected in background sample.

NA = no applicable standard currently exists.

TT = treatment technique.

exceeding the background screening criteria. Similar to the groundwater samples collected from the shallow monitoring wells, aluminum and iron were detected at concentrations exceeding the Federal and State Secondary MCLs.

Field Parameter Results. Field parameter results are presented in Table 4-3. The pH values for groundwater samples collected at Site 9 ranged from 7.99 to 11.80 SUs. Two of the three pH values were above the upper range limit for the Florida secondary drinking water criteria of 8.5 SUs. The majority of the pH measurements at the facility were within the acidic range between 4.5 and 6.5 SUs. The pH values measured at Site 9 represent a possible anomaly. Two possible explanations for the anomaly include a natural or site-related geochemical anomaly of the groundwater or possibly leakage of the alkaline grout around or through the monitoring well seal during well construction activities.

The temperature measurements ranged from 21.2 to 24 °C, and the specific conductance ranged from 33 to 1,300 $\mu\text{mhos}/\text{cm}$. Turbidity measurements ranged from 12.7 to 612 NTUs. All of the groundwater samples had turbidity measurements above the Florida public water supply treatment technique criteria of 5 NTUs.

Site 10, Southeast Open Disposal Area. Groundwater samples were collected from one shallow monitoring well and one intermediate depth monitoring well at Site 10. Table 4-25 presents a summary of the analytical results.

Volatile Organic Compounds. No VOCs were detected in the groundwater samples collected at Site 10.

Semivolatile Organic Compounds. No SVOCs were detected in the groundwater samples collected at Site 10.

Pesticides and Polychlorinated Biphenyls. No pesticides or PCBs were detected in the groundwater samples collected at Site 10.

Inorganic Analytes.

Shallow Monitoring Wells. Twelve inorganic analytes were detected in the groundwater sample collected from the shallow monitoring well at Site 10. None of the analytes detected in the groundwater sample exceeded the background screening criteria. Two of the analytes, aluminum and iron, were detected at concentrations exceeding the Federal and State Secondary MCLs of 200 $\mu\text{g/l}$ (aluminum) and 300 $\mu\text{g/l}$ (iron), respectively.

Intermediate Depth Monitoring Well. Ten inorganic analytes were detected in the groundwater sample collected from the intermediate depth monitoring well at Site 10. None of the analytes were detected at concentrations exceeding either the background screening criteria or Federal or State Standards.

Field Parameter Results. The field parameter results are presented in Table 4-3. The pH values for groundwater samples collected at Site 10 ranged from 5.07 to 5.25 SUs. The pH values were below the lower range for the Florida secondary drinking water criteria of 6.5 SUs. The temperature measurements were 22 °C, and the specific conductance ranged from 15 to 19 $\mu\text{mhos}/\text{cm}$. Turbidity measurements ranged from 0.96 to 41 NTUs.

Table 4-25
Summary Analytical Results for Groundwater
Samples at Site 10

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Well Identifier:	Shallow Monitoring Well	Intermediate Monitoring Well	Background Screening Criteria	Federal/State Standards
ABB-ES Sample Identifier:	WHF-10-2	WHF-10-1		
Collect Date:	WHF10-2	WHF10-1		
Laboratory Sample No.:	27-OCT-93	27-OCT-93		
	90189004	90189005		
Volatile Organic Compounds ($\mu\text{g/l}$)				
None detected				
Semivolatile Organic Compounds ($\mu\text{g/l}$)				
None detected				
Pesticides and Polychlorinated Biphenyls ($\mu\text{g/l}$)				
None detected				
Inorganic Analytes ($\mu\text{g/l}$)				
Aluminum	674	29.5 J	53,360	² 200/ ² 200
Barium	8.6 J	10.3 J	126.8	¹ 2,000/ ¹ 2,000
Calcium	570 J	657 J	4,706	NA/NA
Chromium	4.4 J	-	872	¹ 100/ ¹ 100
Iron	722	31.3 J	80,066	² 300/ ² 300
Lead	1.2 J	1.5 J	20.6	TT 15/ ¹ 15
Magnesium	337 J	254 J	2,922	NA/NA
Manganese	12.6 J	1.6 J	188	² 50/ ² 50
Potassium	1,110 J	2,200 J	17,270	NA/NA
Sodium	2,590 J	1,770 J	5,740	NA/ ¹ 60,000
Vanadium	2.5 J	-	334	NA/NA
Zinc	22.4	18.4 J	140	² 5,000/ ² 5,000

¹ Primary maximum contaminant level (MCL).
² Secondary MCL.
³ Groundwater Guidance Concentration.

Notes: ABB-ES = ABB Environmental Services, Inc.
 MCLs = maximum contaminant levels.
 $\mu\text{g/l}$ = micrograms per liter.
■ = concentration meets or exceeds Federal or State Primary or Secondary MCLs.
 J = estimated concentration.
 NA = no applicable standard currently exists.
 - = compound was not detected above instrument detection limits.
 TT = treatment technique.

Site 11, Southeast Open Disposal Area (B). Groundwater samples were collected from two shallow monitoring wells and two intermediate depth monitoring wells at Site 11. Table 4-26 presents the analytical results for groundwater samples collected at the site.

Volatile Organic Compounds.

Shallow Monitoring Wells. 1,2-Dichloroethene total detected as a single occurrence in the groundwater sample collected from monitoring well WHF-11-1S did not exceed the Federal or State Primary MCL of 70 $\mu\text{g/l}$.

Intermediate Depth Monitoring Wells. Acetone was detected as a single occurrence in the groundwater sample collected from intermediate monitoring well WHF-11-2. Currently, no Federal or State Primary or Secondary MCLs exist for acetone; however, the State of Florida has established a groundwater guidance concentration of 700 $\mu\text{g/l}$ for the compound. The detected concentration in the groundwater sample did not exceed this value.

Semivolatile Organic Compounds. Di-n-octylphthalate was detected in groundwater samples collected from two intermediate depth monitoring wells (WHF-11-1 and WHF-11-2) at Site 11. Currently, no Federal or State Standards exist for di-n-octylphthalate.

Pesticides and Polychlorinated Biphenyls. No pesticides or PCBs were detected in the groundwater samples collected at Site 11.

Inorganic Analytes.

Shallow Monitoring Wells. Seventeen inorganic analytes were detected in the groundwater samples collected from shallow monitoring wells at Site 11. Six inorganic analytes (barium, calcium, lead, magnesium, manganese, and sodium) were detected at concentrations exceeding the background screening criteria. Four of the analytes, including aluminum, iron, lead, and manganese, were detected at concentrations exceeding the Federal and State Primary MCLs. The Federal and State MCLs of each analyte exceeded are as follows: aluminum, 200 $\mu\text{g/l}$; iron, 300 $\mu\text{g/l}$; lead (treatment technique) 15 $\mu\text{g/l}$; and manganese, 50 $\mu\text{g/l}$.

Intermediate Depth Monitoring Wells. Twelve inorganic analytes were detected in the groundwater samples collected from the intermediate depth monitoring wells at Site 11. Calcium was the only inorganic analyte detected at concentrations exceeding the background screening criteria. Aluminum and iron were both detected at concentrations exceeding the Federal and State Secondary MCLs of 200 (aluminum) and 300 $\mu\text{g/l}$ (iron).

Field Parameter Results. Field parameter results are presented in Table 4-3. The pH values for groundwater samples collected at Site 11 ranged from 5.70 to 11.90 SUs. The pH values, except the one for the sample from monitoring well WHF-11-2, were below the lower range for the Florida Secondary drinking water criteria of 6.5 SUs. The pH value of 11.92 reported from monitoring well WHF-11-2 represents an anomaly if compared to the majority of the pH values recorded at the facility. It is likely that the value represents either a natural or site-related groundwater geochemical anomaly or possibly leakage of the alkaline grout

Table 4-26
Summary Analytical Results for Groundwater Samples at Site 11

Remedial Investigation and Feasibility Study, Phase II A
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Well Identifier:	Shallow Monitoring Wells			Intermediate Monitoring Wells		Background Screening Criteria	Federal/State Standards
	WHF-11-1S	WHF-11-3	WHF-11-3DUP	WHF-11-1	WHF-11-2		
ABB-ES Sample Identifier:	WHF11-1B	WHF11-3	WHF11-3A	WHF11-1	WHF11-2		
Collect Date:	28-OCT-93	28-OCT-93	28-OCT-93	29-OCT-93	28-OCT-93		
Laboratory Sample No.:	90191002	90190001	90190002	90194001	90191001		
Volatile Organic Compounds (µg/l)							
Acetone	-	-	-	-	94 J	ND	NA/ ³ 700
1,2-Dichloroethene (total)	9 J	-	-	--	--	ND	^{1,4} 70/ ^{1,4} 70
Semivolatile Organic Compounds (µg/l)							
Di-n-octylphthalate	--	--	--	² 19/17 J	² 4 J/5 J	ND	NA/NA
Pesticides and Polychlorinated Biphenyls (µg/l)							
None detected							
Inorganic Analytes (µg/l)							
Aluminum	16,400	24,000	22,300	69.8 J	5,860	53,360	² 200/ ² 200
Barium	97.1 J	153 J	150 J	33.8 J	63.6 J	126.8	¹ 2,000/ ¹ 2,000
Beryllium	0.2	--	1.2 J	--	--	3.6	¹ 4/ ¹ 4
Calcium	49,800	9,570	9,520	6,830	67,700	4,706	NA/NA
Chromium	20.3	54.3	55.2	--	44.4	872	¹ 100/ ¹ 100
Cobalt	--	6.1 J	5.9 J	--	--	20.7	NA/NA
Copper	8.4 J	34	27.5	5.4 J	6.4 J	67.6	² 100/ ² 1,000
Iron	23,000	37,800	36,700	142	2,280	80,066	² 300/ ² 300
Lead	5.4	21.9	19 J	6	2.1 J	20.6	TT 15/ ¹ 15
Magnesium	5,220	3,570 J	3,450	304 J	567 J	2,922	NA/NA
Manganese	272	374	369	2.5 J	14.5 J	188	² 50/ ² 50
Mercury	--	--	0.22 J	--	--	0.32	¹ 2/ ¹ 2
Nickel	13.3 J	16.7 J	13.9 J	--	--	744	¹ 100/ ¹ 100

See notes at end of table.

Table 4-26 (Continued) Summary Analytical Results for Groundwater Samples at Site 11							
Remedial Investigation and Feasibility Study, Phase IIA Technical Memorandum No. 5, Groundwater Assessment NAS Whiting Field, Milton, Florida							
Well Identifier:	Shallow Monitoring Wells			Intermediate Monitoring Wells		Background Screening Criteria	Federal/State Standards
	WHF-11-1S	WHF-11-3	WHF-11-3DUP	WHF-11-1	WHF-11-2		
ABB-ES Sample Identifier:	WHF11-1B	WHF11-3	WHF11-3A	WHF11-1	WHF11-2		
Collect Date:	28-OCT-93	28-OCT-93	28-OCT-93	29-OCT-93	28-OCT-93		
Laboratory Sample No.:	90191002	90190001	90190002	90194001	90191001		
Inorganic Analytes ($\mu\text{g/l}$) (Continued)							
Potassium	1,980 J	3,060 J	2,940 J	747 J	9,960	17,270	NA/NA
Sodium	25,300	12,800	12,800	1,800 J	2,940 J	5,740	NA/ ¹ 160,000
Vanadium	49.8 J	61.8	60.6	--	--	335	NA/ ³ 49
Zinc	32.5	80.8	81.5	37.5	15.8 J	140	² 5,000/ ² 5,000

¹ Primary maximum contaminant level (MCL).² Secondary MCL.³ Groundwater Guidance Concentration.⁴ Cis 1,2-Dichloroethene was used for comparison.

Notes: ABB-ES = ABB Environmental Services, Inc.

MCLs = maximum contaminant levels.

 $\mu\text{g/l}$ = micrograms per liter.

-- = compound was not detected above instrument detection limits.

J = estimated concentration.

ND = compound not detected in background sample.

NA = no applicable standard currently exists.

█ = concentration meets or exceeds Federal or State Primary or Secondary MCLs.

TT = treatment techniques.

around or through the well seal during well construction activities. The temperature measurements ranged from 19 to 20.8 °C, and the specific conductance ranged from 37 to 2,060 $\mu\text{mhos}/\text{cm}$.

Turbidity measurements ranged from 2.77 to 799 NTUs. All of the groundwater samples except the one from monitoring well WHF-11-1 had turbidity measurements above the Florida public water supply treatment technique criteria of 5 NTUs.

Site 12, Tetraethyl Lead Disposal Area. A groundwater sample was collected from one intermediate depth monitoring well at Site 12. Table 4-27 presents the analytical results for the groundwater sample collected.

Volatile Organic Compounds. No VOCs were detected in the groundwater sample collected at Site 12.

Semivolatile Organic Compounds. No SVOCs were detected in the groundwater sample collected at Site 12.

Pesticides and Polychlorinated Biphenyls. No pesticides or PCBs were detected in the groundwater sample collected at Site 12.

Inorganic Analytes. Eleven inorganic analytes were detected in the groundwater sample collected at Site 12. Cadmium was the only analyte detected at a concentration exceeding the background screening criteria. The reported concentration also exceeded the Federal and State Primary MCL of 5 $\mu\text{g/l}$.

Field Parameter Results. The field parameter results are presented in Table 4-3. The pH value for the groundwater sample collected at Site 12 was 4.88 SUs. This value is below the lower range for the Florida secondary drinking water requirements of 6.5 SUs. The temperature measurement was 19.6 °C, and the specific conductance was 14 $\mu\text{mhos}/\text{cm}$. The turbidity measurement was 14.61 NTUs.

Site 13, Sanitary Landfill. Groundwater samples were collected from two shallow monitoring wells and one intermediate depth monitoring well at Site 13. Table 4-28 presents the analytical results for the groundwater samples collected.

Volatile Organic Compounds. Acetone was detected as a single occurrence in the groundwater sample collected from water table monitoring well WHF-13-2. Currently, no Federal or State MCLs exist for acetone; however, the State of Florida has established a groundwater guidance concentration of 700 $\mu\text{g/l}$ for the analyte. The detected concentration in the groundwater sample did not exceed this value.

No VOCs were detected in the groundwater sample collected from the intermediate monitoring well.

Semivolatile Organic Compounds. Bis(2-ethylhexyl)phthalate was detected as a single occurrence in the groundwater sample collected from monitoring well WHF-13-2. The concentration detected exceeded the Federal and State Primary MCLs of 6 $\mu\text{g/l}$.

No SVOCs were detected in the groundwater sample collected from the intermediate depth monitoring well.

Table 4-27
Summary Analytical Results for Groundwater Samples at Site 12

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

	Intermediate Monitoring Well	Background Screening Criteria	Federal/Florida Standards
	WHF-12-1		
Well Identifier:			
ABB-ES Sample Identifier:	WHF12-1		
Collect Date:	01-NOV-93		
Laboratory Sample No.:	90196002		
Volatile Organic Compounds ($\mu\text{g/l}$)			
None detected			
Semivolatile Organic Compounds ($\mu\text{g/l}$)			
None detected			
Pesticides and Polychlorinated Biphenyls ($\mu\text{g/l}$)			
None detected			
Inorganic Analytes ($\mu\text{g/l}$)			
Aluminum	44.9 J	53,360	² 200/ ² 200
Barium	19.2 J	126.8	¹ 2,000/ ¹ 2,000
Cadmium	22.3	ND	¹ 5/ ¹ 5
Calcium	3,000 J	4,706	NA/NA
Iron	90.8 J	80,066	² 300/ ² 300
Lead	1.6 J	20.6	TT 15/ ¹ 15
Magnesium	321 J	2,922	NA/NA
Manganese	3.9 J	188	² 50/ ² 50
Potassium	3,550 J	17,270	NA/NA
Sodium	2,580 J	5,740	NA/ ¹ 160,000
Zinc	19.9 J	140	² 5,000/ ² 5,000

¹ Primary maximum contaminant level (MCL).
² Secondary MCL.

Notes: ABB-ES = ABB Environmental Services, Inc.
 MCLs = maximum contaminant levels.
 $\mu\text{g/l}$ = micrograms per liter.
 J = estimated concentration.
 ■ = concentration meets or exceeds Federal or State Primary or Secondary MCLs.
 ND = compound not detected in background sample.
 NA = no applicable standard currently exists.
 TT = treatment technique.

Table 4-28
Summary Analytical Results for Groundwater Samples at Site 13

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

	Shallow Monitoring Wells		Intermediate Monitoring Well	Back-ground Screening Criteria	Federal/Florida Standards
	WHF-13-1S	WHF-13-2			
Well Identifier:	WHF-13-1S	WHF-13-2	WHF-13-1		
ABB-ES Sample Identifier:	WHF13-1B	WHF13-2	WHF13-1		
Collect Date:	02-NOV-93	02-NOV-93	02-NOV-93		
Laboratory Sample No.:	90198002	90198003	90198001		
Volatile Organic Compounds ($\mu\text{g/l}$)					
Acetone	-	70 J	-	ND	NA/ ³ 700
Semivolatile Organic Compounds ($\mu\text{g/l}$)					
bis(2-Ethylhexyl)phthalate	-	16	-	ND	¹ 6/ ¹ 6
Pesticides and Polychlorinated Biphenyls ($\mu\text{g/l}$)					
None detected					
Inorganic Analytes ($\mu\text{g/l}$)					
Aluminum	8,740	111 J	100	53,360	² 200/ ² 200
Arsenic	2.3 J	-	-	ND	¹ 50/ ¹ 50
Barium	82 J	46 J	-	126.8	¹ 2,000/ ¹ 2,000
Cadmium	-	12.6	-	3.2	¹ 5/ ¹ 5
Calcium	28,000	2,860	24,500	4,706	NA/NA
Chromium	19.1	11	-	872	¹ 100/ ¹ 100
Copper	11 J	3.9 J	11	67.6	TT 1,300 ² 1,000/ ² 1,000
Iron	16,000	141	-	80,066	² 300/ ² 300
Lead	3.6	-	1.9 J	20.6	TT 15/ ¹ 15
Magnesium	3,410 J	1,500 J	2,810 J	2,922	NA/NA
Manganese	142	28.6	111	188	² 50/ ² 50
Mercury	-	0.20	0.22	0.32	¹ 2/ ¹ 2
Potassium	1,660	-	1,580 J	17,270	NA/NA
Sodium	8,280	1,880 J	2,420 J	5,740	NA/ ¹ 160,000
Zinc	21.6	16.9 J	239	140	² 5,000/ ² 5,000

¹ Primary maximum contaminant level (MCL).

² Secondary MCL.

³ Groundwater Guidance Concentration.

Notes: ABB-ES = ABB Environmental Services, Inc.

MCLs = maximum contaminant levels.

$\mu\text{g/l}$ = micrograms per liter.

- = compound was not detected above instrument detection limits.

J = estimated concentration.

ND = compound not detected in background sample.

NA = no applicable standard currently exists.

████ = concentration meets or exceeds Federal or State Primary or Secondary MCLs.

TT = treatment technique.

Pesticides and Polychlorinated Biphenyls. No pesticides or PCBs were detected in groundwater samples collected from either the shallow or intermediate depth monitoring wells at Site 13.

Inorganic Analytes.

Shallow Monitoring Wells. Fifteen inorganic analytes were detected in the groundwater samples collected from shallow monitoring wells at Site 13. Five of the analytes (arsenic, cadmium, calcium, magnesium, and sodium) exceeded the background groundwater screening criteria. Four of the analytes (aluminum, cadmium, iron, and manganese) were detected at concentrations exceeding the Federal and State Primary or Secondary MCLs.

Intermediate Depth Monitoring Wells. Ten inorganic analytes were detected in the groundwater samples collected from the intermediate depth monitoring well at Site 13. Calcium and zinc were the only analytes detected at concentrations exceeding background screening criteria. Only manganese exceeded the Federal and State Secondary MCL of 50 $\mu\text{g/l}$.

Field Parameter Results. The field parameter results are presented in Table 4-3. The pH values for groundwater samples collected at Site 13 ranged from 5.61 to 6.0 SU. The pH values were below the lower range for the Florida Secondary Drinking Water criteria of 6.5 SU. The temperature measurements ranged from 19.5 to 23.9 °C, and the specific conductance ranged from 40 to 185 $\mu\text{mhos}/\text{cm}$.

Turbidity measurements ranged from 6.57 to 864 NTUs. All of the groundwater samples had turbidity measurements above the Florida public water supply treatment technique criteria of 5 NTUs.

Site 14, Short-term Sanitary Landfill. Groundwater samples were collected from one shallow monitoring well and one intermediate depth monitoring well at Site 14. Table 4-29 presents the analytical results for groundwater samples collected.

Volatile Organic Compounds. No VOCs were detected in groundwater samples collected from the shallow or intermediate depth monitoring wells at Site 14.

Semivolatile Organic Compounds.

Shallow Monitoring Wells. Bis(2-ethylhexyl)phthalate was the only SVOC detected in the groundwater sample collected from the shallow monitoring well at Site 14. The detected concentration exceeded the Federal and State Primary MCL of 6 $\mu\text{g/l}$.

Intermediate Depth Monitoring Wells. Two SVOCs, bis(2-ethylhexyl)phthalate and butylbenzylphthalate, were detected in the groundwater sample collected from the intermediate monitoring well. The detected concentration of butylbenzylphthalate did not exceed the Federal Primary MCL of 100 $\mu\text{g/l}$; however, the detected concentration of bis(2-ethylhexyl)phthalate did exceed the Federal and State Primary MCL of 6 $\mu\text{g/l}$.

Pesticides and Polychlorinated Biphenyls. No pesticides or PCBs were detected in any groundwater samples collected at Site 14.

Table 4-29
Summary Analytical Results for Groundwater Samples at Site 14

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Well Identifier:	Shallow Monitoring Well	Intermediate Monitoring Well	Background Screening Criteria	Federal/State Standards
	WHF-14-2	WHF-14-1		
ABB-ES Sample Identifier:	WHF14-2	WHF14-1		
Collect Date:	02-NOV-93	03-NOV-93		
Laboratory Sample No.:	90198004	90199002		
Volatile Organic Compound (µg/l)				
None detected				
Semivolatile Organic Compounds (µg/l)				
Butylbenzylphthalate	-	2 J	ND	¹ 100/ ³ 1,400
bis(2-Ethylhexyl)phthalate	18	7 J	ND	¹ 6/ ⁶ 6
Pesticides and Polychlorinated Biphenyls (µg/l)				
None detected				
Inorganic Analytes (µg/l)				
Aluminum	1,760	63.3 J	53,360	² 200/ ² 200
Barium	23.9 J	36.5 J	126.8	¹ 2,000/ ¹ 2,000
Calcium	906 J	13,000	4,706	NA/NA
Chromium	7.9 J	-	872	¹ 100/ ¹ 100
Copper	3.5 J	12.9 J	67.6	TT 1,300 ² 1,000/ ² 1,000
Iron	2,770	26.1 J	80,066	² 300/ ² 300
Lead	1.2 J	-	20.6	TT 15/ ¹ 15
Magnesium	827 J	676 J	2,922	NA/NA
Manganese	7.5 J	3.9 J	188	² 50/ ² 50
Potassium	1,470 J	933 J	17,270	NA/NA
Sodium	2,320 J	2,480 J	5,740	NA/ ¹ 160,000
Vanadium	9.3 J	-	335	NA/NA
Zinc	12 J	301	140	² 5,000/ ² 5,000

¹ Primary maximum contaminant level (MCL).
² Secondary MCL.
³ Groundwater Guidance Concentration.

Notes: ABB-ES = ABB Environmental Services, Inc.
 MCLs = maximum contaminant levels.
 µg/l = micrograms per liter.
 - = compound was not detected above instrument detection limits.
 J = estimated concentration.
 ND = compound not detected in background sample.
 NA = no applicable standard currently exists.
 ■ = concentration meets or exceeds Federal or State Primary or Secondary MCLs.
 TT = treatment technique.

Inorganic Analytes.

Shallow Monitoring Wells. Thirteen inorganic analytes were detected in the groundwater sample collected from the shallow monitoring well at Site 14. None of the detected inorganic concentrations exceeded the background screening criteria. Two of the analytes (aluminum and iron) were detected at concentrations exceeding the Federal and State Secondary MCLs of 200 and 300 $\mu\text{g/l}$, respectively.

Intermediate Depth Monitoring Wells. Ten inorganic analytes were detected in the groundwater samples from the intermediate depth monitoring well. Calcium was the only analyte detected in the sample at concentrations exceeding the background screening criteria. None of the detected analytes exceeded Federal or State MCLs.

Field Parameter Results. Field parameter results are presented in Table 4-3. The pH values for the groundwater samples collected at Site 14 were 4.90 and 4.91 SUs. These values are below the lower range for the Florida Secondary drinking water criteria of 6.5 SUs. The temperature measurements were 21.3 and 21.6 °C, and the specific conductance was 20 $\mu\text{mhos}/\text{cm}$. The turbidity measurement was 2.59 and 103.4 NTUs.

Southwest Disposal Areas This site grouping comprises two sites: Sites 15, Southwest Landfill, and Site 16, Open Disposal and Burning Area. The locations of the sites are shown on Figure 1-4.

Site 15, Southwest Landfill. Groundwater samples were collected from 11 monitoring wells installed at Site 15. The monitoring wells included five shallow monitoring wells, three intermediate monitoring wells, and three deep monitoring wells. Table 4-30 presents the analytical results for organic compounds detected in the groundwater samples collected at the site.

Volatile Organic Compounds.

Shallow Monitoring Wells. Five VOCs, including chloromethane, 1,2-dichloroethene (total), toluene, chlorobenzene, and ethylbenzene, were detected in the groundwater samples collected from shallow monitoring wells at the site. None of the VOC concentrations detected in the groundwater samples exceeded Federal or State MCLs.

Intermediate and Deep Monitoring Wells. No VOCs were detected in groundwater samples collected from the intermediate or deep groundwater monitoring wells at Site 15.

Semivolatile Organic Compounds.

Shallow Monitoring Wells. Four SVOCs, including 1,4-dichlorobenzene, naphthalene, diethylphthalate, and bis(2-ethylhexyl)phthalate, were detected in the groundwater samples collected from shallow monitoring wells at Site 15. Three of the four compounds (1,4-dichlorobenzene, naphthalene, and diethylphthalate) were only detected in the groundwater sample collected from monitoring well WHF-15-6S.

Bis(2-ethylhexyl)phthalate was detected in two of the samples (WHF-15-4 and WHF-15-5). Both detected concentrations of bis(2-ethylhexyl)phthalate exceed the Federal and State MCL of 6 $\mu\text{g/l}$.

Table 4-30

Summary Analytical Results for Organic Compounds Detected in Groundwater Samples at Site 15

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Well Identifier:	Shallow Monitoring Wells						Background Screening Criteria	Federal/State Standards
	WHF-15-2S	WHF-15-2S DUP	WHF-15-3S	WHF-15-4	WHF-15-5	WHF-15-6S		
ABB-ES Sample Identifier:	WHF15-2B	WHF15-2BA	WHF15-3B	WHF15-4	WHF15-5	WHF15-6B		
Collect Date:	09-NOV-93	09-NOV-93	14-NOV-93	03-NOV-93	03-DEC-93	24-NOV-93		
Laboratory Sample No.:	90210003	90210004	90203001	90199003	90271001	90214004		
Volatile Organic Compounds ($\mu\text{g/l}$)								
Chloromethane	1 J	--	--	--	--	--	ND	NA/ ³ 2.7
1,2-Dichloroethene (total)	--	--	--	--	--	3 J	ND	^{1,4} 70/ ^{1,4} 70
Toluene	--	--	--	7 J	--	--	26	1,000/ ¹ 1,000, ² 40
Chlorobenzene	--	--	--	--	--	5 J	ND	NA/NA
Ethylbenzene	--	--	--	--	--	7 J	ND	¹ 700/ ¹ 700, ² 20
Semivolatile Organic Compounds ($\mu\text{g/l}$)								
1,4-Dichlorobenzene	--	--	--	--	--	42	ND	¹ 75/ ¹ 75
Naphthalene	--	--	--	--	--	7 J	ND	NA/ ³ 6.8
Diethylphthalate	--	--	--	--	--	2 J	ND	NA/ ³ 5,600
bis(2-Ethylhexyl)phthalate	--	--	--	10	21	--	ND	¹ 6/ ¹ 6
Pesticides and Polychlorinated Biphenyls ($\mu\text{g/l}$)								
None detected								
See notes at end of table.								

Table 4-30 (Continued)
Summary Analytical Results for Organic Compounds Detected in Groundwater Samples at Site 15

**Remedial Investigation and Feasibility Study, Phase II A
Technical Memorandum No. 5, Groundwater Assessment
NAS Whiting Field, Milton, Florida**

Intermediate and Deep Monitoring Wells. No SVOCs were detected in groundwater samples collected from the intermediate or deep aquifer zone monitoring wells at Site 15.

Pesticides and Polychlorinated Biphenyls. No pesticide or PCB compounds were detected in groundwater samples collected from the shallow, intermediate, or deep aquifer zone monitoring wells.

Inorganic Analytes. Table 4-31 summarizes the analytical results for the inorganic analytes detected in groundwater samples collected at Site 15.

Shallow Monitoring Wells. Twenty-one inorganic analytes were detected in the groundwater samples collected from shallow monitoring wells at Site 15. Ten of the analytes, including aluminum, arsenic, cadmium, calcium, iron, magnesium, manganese, silver, thallium, and cyanide, were detected at concentrations exceeding the background screening criteria. Four of the analytes (aluminum, cadmium, iron, and manganese) were detected at concentrations exceeding Federal and State Primary or Secondary MCLs. The Federal and State MCLs for these compounds are as follows: aluminum, 200 $\mu\text{g/l}$ (secondary); calcium, 5 $\mu\text{g/l}$ (primary); iron, 300 $\mu\text{g/l}$ (secondary); and manganese, 50 $\mu\text{g/l}$ (secondary).

Intermediate Depth Monitoring Wells. Fifteen of the inorganic analytes were detected in groundwater samples collected from the intermediate depth monitoring well. Four analytes, including cadmium, calcium, mercury, and thallium, were detected at concentrations exceeding the background screening criteria. Calcium was the only analyte detected at concentrations exceeding the Federal and State Primary MCL of 5 $\mu\text{g/l}$.

Deep Monitoring Wells. Sixteen inorganic analytes were detected in groundwater samples collected from the deep monitoring wells at Site 15. Three of the analytes (cadmium, sodium, and thallium) were detected at concentrations exceeding the background screening criteria. Cadmium, detected in the groundwater sample from monitoring well WHF-15-2D, was the only analytical concentration that exceeded the Federal and State Primary MCL.

Field Parameter Results. Field parameter results are presented in Table 4-3. The pH values for groundwater samples collected at Site 15 ranged from 4.80 to 6.15 SUs. The pH values were below the lower range for the Florida secondary drinking water criteria of 6.5 SUs. The temperature measurements ranged from 21.1 to 24.8 °C, and the specific conductance ranged from 20 to 270 $\mu\text{mhos/cm}$.

Turbidity measurements ranged from 1.79 to 1,348 NTUs. All of the groundwater samples except three (WHD-15-1, WHD-15-3D, and WHD-15-6D) had turbidity measurements above the Florida public water supply treatment technique criteria of 5 NTUs.

Site 16, Open Disposal and Burning Area. Groundwater samples were collected from 12 monitoring wells located at Site 16, including 5 shallow wells, 4 intermediate wells, and 3 deep wells. Table 4-32 presents the analytical results for the organic compounds detected in groundwater samples from Site 16.

Table 4-31

Summary Analytical Results for Inorganic Parameters Detected in Groundwater Samples at Site 15

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Well Identifier:	Shallow Monitoring Wells						Back-ground Screening Criteria	Federal/State Standards
	WHF-15-2S	WHF-15-2S DUP	WHF-15-3S	WHF-15-4	WHF-15-5	WHF-15-6S		
ABB-ES Sample Identifier:	WHF15-2B	WHF15-2BA	WHF15-3B	WHF15-4	WHF15-5	WHF15-6B		
Collect Date:	09-NOV-93	09-NOV-93	14-NOV-93	03-NOV-93	03-DEC-93	24-NOV-93		
Laboratory Sample No.:	90210003	90210004	90203001	90199003	90271001	90214004		
Metals and Cyanide (µg/l)								
Aluminum	76,400	45,600	10,600	3,350	519	9,990	53,360	² 200/ ¹ 200
Arsenic	-	-	2.1 J	-	2.3 J	2.1 J	ND	¹ 50/ ¹ 50
Barium	75.8 J	56.1 J	-	23 J	34.3 J	126 J	126.8	¹ 2,000/ ¹ 2,000
Beryllium	0.71 J	0.52 J	--	--	--	0.39 J	30.6	¹ 4/ ¹ 4
Cadmium	-	5	--	--	--	--	ND	¹ 5/ ¹ 5
Calcium	2,430 J	2,570 J	1,080 J	4,360 J	1,320 J	7,430	4,706	NA/NA
Chromium	71.5	46.9	22.1	32.2	11.2	13	872	¹ 100/ ¹ 100
Cobalt	-	-	--	--	--	--	20.7	NA/NA
Copper	30.6	23.2 J	13.3 J	5 J	7.6 J	19.9 J	67.6	TT 1,300 ² 1,000/ ¹ 1,000
Iron	94,500	78,000	33,000	4,700	3,390	68,600	80,066	¹ 300/ ¹ 300
Lead	12	6.8	6	-	3.6	3.9 J	20.6	TT 15/ ¹ 15
Magnesium	1,240 J	1,070 J	1,010 J	628 J	1,340 J	3,590 J	2,922	NA/NA
Manganese	1,270	1,260	39.6	16.5	41	291	188	² 50/ ¹ 50
Mercury	-	0.16 J	0.15 J	-	--	--	0.32	¹ 2/ ¹ 2
Nickel	20.5 J	--	--	14 J	--	11.7 J	744	¹ 100/ ¹ 100
Potassium	1,110 J	1,020 J	916 J	3,250 J	949 J	2,680 J	17,270	NA/NA
Silver	3.8 J	2.7 J	--	--	4.6 J	--	4	² 100/ ¹ 100
Sodium	1,080 J	1,040 J	1,810 J	3,540 J	1,540 J	3,800 J	5,740	NA/ ¹ 160,000
Thallium	1 J	--	--	--	--	0.92 J	ND	¹ 2/ ¹ 2
Vanadium	136	102	69	29.1 J	--	17.6 J	335	NA/NA
Zinc	51.6	39.5	48.4	16.9 J	52.7	43.7	140	² 5,000/ ¹ 5,000
Cyanide	1.9 J	2.5 J	--	--	--	2.1 J	2.5	¹ 200/ ¹ 200

See notes at end of table.

Table 4-31 (Continued)
Summary Analytical Results for Inorganic Parameters Detected in Groundwater Samples at Site 15

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Well Identifier: ABB-ES Sample Identifier:	Intermediate Monitoring Wells			Deep Monitoring Wells			Background Screening Criteria	Federal/State Standards
	WHF-15-1	WHF-15-2I	WHF-15-3I	WHF-15-2D	WHF-15-3D	WHF-15-6D		
Collect Date:	03-DEC-93	09-NOV-93	03-NOV-93	09-NOV-93	03-NOV-93	24-NOV-93		
Laboratory Sample No.:	90271002	90210002	90199005	90210001	90199004	90214003		
Metals and Cyanide (µg/l)								
Aluminum	24.5 J	39.2 J	-	77.2	-	43 J	53,360	² 200/ ² 200
Arsenic	-	-	-	-	-	-	ND	¹ 50/ ¹ 50
Barium	24.3 J	15.9 J	8.4 J	8.5 J	7.8 J	14.2 J	126.8	¹ 2,000/ ¹ 2,000
Beryllium	-	-	-	-	-	0.26 J	3.6	¹ 4/ ¹ 4
Cadmium	7.6	-	-	23.3	-	12.7	ND	¹ 5/ ¹ 5
Calcium	8,710	801 J	605 J	2,090 J	2,820 J	802 J	4,706	NA/NA
Chromium	3.4 J	--	-	--	-	--	872	¹ 100/ ¹ 100
Cobalt	4.3 J	-	-	--	--	--	20.7	NA/NA
Copper	2.2 J	-	8.8 J	2.6 J	-	2.6 J	67.6	TT 1,300 ² 1,000/ ² 1,000
Iron	22.6 J	46 J	75.2 J	180	66 J	198	80,066	¹ 300/ ¹ 300
Lead	-	--	-	--	-	1.1 J	20.6	TT 15/ ¹ 15
Magnesium	670 J	581 J	423 J	491 J	1,430 J	540 J	2,922	NA/NA
Manganese	2.5 J	14.1 J	8 J	11.6 J	1.6 J	10.8 J	188	² 50/ ² 50
Mercury	1	-	--	0.17 J	-	--	0.32	¹ 2/ ¹ 2
Nickel	-	-	-	10 J	-	--	744	¹ 100/ ¹ 100
Potassium	870 J	-	-	2,240 J	1,100 J	641 J	17,270	NA/NA
Silver	-	-	--	-	-	--	4	² 100/ ² 100
Sodium	4,850 J	2,670 J	2,360 J	3,860 J	13,300	2,890 J	5,740	NA/ ¹ 160,000
Thallium	-	0.93 J	-	-	-	0.91 J	ND	¹ 2/ ¹ 2

See notes at end of table.

Table 4-31 (Continued)
Summary Analytical Results for Inorganic Parameters Detected in Groundwater Samples at Site 15

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Well Identifier(s)	Intermediate Monitoring Wells			Deep Monitoring Wells			Background Screening Criteria	Federal/State Standards
	WHF-15-1	WHF-15-2I	WHF-15-3I	WHF-15-2D	WHF-15-3D	WHF-15-6D		
ABB-ES Sample Identifier:	WHF15-1	WHF15-2C	WHF15-3C	WHF15-2D	WHF15-3D	WHF15-6D		
Collect Date:	03-DEC-93	09-NOV-93	03-NOV-93	09-NOV-93	03-NOV-93	24-NOV-93		
Laboratory Sample No.:	90271002	90210002	90199005	90210001	90199004	90214003		
Metals and Cyanide (µg/l) (Continued)								
Vanadium	--	--	--	--	--	--	335	NA/NA
Zinc	4.9 J	14.7 J	35.9	16.8 J	10.8 J	17.1 J	140	² 5,000/ ² 5,000
Cyanide	--	--	--	--	--	--	4.2	¹ 200/ ¹ 200

¹ Primary maximum contaminant level (MCL).

² Secondary MCL.

³ Groundwater Guidance Concentration.

Notes: ABB-ES = ABB Environmental Services, Inc.

MCLs = maximum contaminant levels.

µg/l = micrograms per liter.

█ = concentration meets or exceeds Federal or State Primary or Secondary MCLs.

-- = compound was not detected above instrument detection limits.

J = estimated concentration.

ND = compound not detected in background sample.

NA = no applicable standard currently exists.

TT = treatment techniques.

Table 4-32

**Remedial Investigation and Feasibility Study, Phase II A
Technical Memorandum No. 5, Groundwater Assessment
NAS Whiting Field, Milton, Florida**

Table 4-32 (Continued)
Summary Analytical Results for Organic Compounds Detected in Groundwater Samples at Site 16

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Well Identifier:	Intermediate Monitoring Wells				Deep Monitoring Wells			Background Screening Criteria	Federal/State Standards
	WHF-16-3I	WHF-16-3II	WHF-16-4II	WHF-16-2I	WHF-16-3D	WHF-16-3D DUP	WHF-16-4D		
ABB-ES Sample Identifier:	WHF16-3C	WHF16-3CD	WHF16-4CD	WHF16-2C	WHF16-3D	WHF16-3DA	WHF16-4D		
Collect Date:	12-NOV-93	12-NOV-93	16-NOV-93	06-DEC-93	11-NOV-93	11-NOV-93	15-NOV-93		
Laboratory Sample No.:	90221002	90221001	90226003	90272001	90220001	90220002	90225002		
Volatile Organic Compounds (µg/l)									
Methylene chloride	--	--	--	--	--	--	--	ND	¹ 5/ ² 5
1,2-Dichloroethene (total)	2 J	34 J	--	--	--	--	--	ND	¹ 470/ ¹ 470
Chloroform	3 J	--	--	--	--	--	--	ND	¹ 100/ ³ 6
1,2-Dichloroethane	--	--	--	20	--	--	--	ND	¹ 5/ ² 3
Trichloroethene	4 J	--	4 J	--	--	--	--	ND	¹ 5/ ² 3
Benzene	--	1,200 J	--	560 J	--	--	--	8	¹ 5/ ² 1
Ethylbenzene	--	22 J	--	--	--	--	--	ND	¹ 700/ ¹ 700, ² 30
Semivolatile Organic Compounds (µg/l)									
bis(2-Ethylhexyl)phthalate	--	8 J	10	--	--	--	--	ND	¹ 6/ ² 4
Pesticides and Polychlorinated Biphenyls (µg/l)									
None detected									
¹ Primary maximum contaminant level (MCL).									
² Secondary MCL.									
³ Groundwater Guidance Concentration.									
⁴ cis 1,2-Dichloroethene was used for comparison.									
Notes: ABB-ES = ABB Environmental Services, Inc.									
MCLs = maximum contaminant levels.									
µg/l = micrograms per liter.									
████ = concentration meets or exceeds Federal or State Primary or Secondary MCLs.									
-- = compound was not detected above instrument detection limits.									
J = estimated concentration.									
ND = compound not detected in background sample.									
NA = no applicable standard currently exists.									
TT = treatment techniques.									

Volatile Organic Compounds. Seven VOCs, including methylene chloride, 1,2-dichloroethene (total), chloroform, 1,2-dichloroethene, trichloroethene, benzene, and ethylbenzene, were detected in the groundwater samples collected from monitoring wells at Site 16.

Shallow Monitoring Wells. Methylene chloride was the only VOC detected in groundwater samples collected from shallow monitoring wells at Site 16. The compound was detected in a single groundwater sample (from monitoring well WHF-16-4S) at a concentration less than the Federal and State Primary MCL of 5 $\mu\text{g/l}$.

Intermediate Depth Monitoring Wells. Six VOCs (1,2-dichloroethene [total], chloroform, 1,2-dichloroethane, trichloroethene, benzene, and ethylbenzene) were detected in the groundwater samples collected from intermediate monitoring wells. Five of the six compounds were detected in the groundwater sample from monitoring well WHF-16-2. However, all of the compounds were also reported in at least one other sample from the intermediate depth wells. Three of the VOCs (1,2-dichloroethane, trichloroethene, and benzene) were detected at concentrations exceeding the Federal and State MCLs. The Federal and State Primary MCLs for the three VOCs are as follows: 1,2-dichloroethene, 5 (Federal) and 3 $\mu\text{g/l}$ (State); trichloroethene, 5 (Federal) and 3 $\mu\text{g/l}$ (State); and benzene, 5 (Federal) and 1 $\mu\text{g/l}$ (State).

Deep Monitoring Wells. No VOCs were detected in groundwater samples collected from the deep monitoring wells at Site 16.

Semivolatile Organic Compounds.

Shallow Monitoring Wells. Bis(2-ethylhexyl) phthalate was the only SVOC detected in groundwater samples collected from shallow monitoring wells at Site 16. The compound was detected in a single sample (WHF-16-5) at a concentration less than the Federal and State MCL of 6 $\mu\text{g/l}$.

Intermediate Depth Monitoring Wells. Bis(2-ethylhexyl)phthalate was also the only SVOC detected in groundwater samples collected from an intermediate depth. Samples from monitoring wells WHF-16-3II and WHF-16-4II had detected concentrations of bis(2-ethylhexyl)phthalate of 8 J $\mu\text{g/l}$ and 10 $\mu\text{g/l}$, respectively. Both detected concentrations exceed the Federal and State MCLs of 6 $\mu\text{g/l}$.

Deep Monitoring Wells. No SVOCs were detected in groundwater samples collected from the deep monitoring wells at Site 16.

Pesticides and Polychlorinated Biphenyls. No pesticide or PCB compounds were detected in groundwater samples collected from monitoring wells at Site 16.

Inorganic Analytes. Table 4-33 provides a summary of the inorganic analytes detected in the groundwater samples at Site 16. Twenty-one inorganic analytes were detected in the groundwater samples.

Shallow Monitoring Wells. Nineteen inorganic analytes were detected in the groundwater samples collected from shallow monitoring wells at Site 16. Eleven of the analytes, including arsenic, beryllium, calcium, cobalt, iron, magnesium, manganese, silver, sodium, vanadium, and zinc, were detected at concentrations

Table 4-33
Summary Analytical Results for Inorganic Parameters Detected in Groundwater Samples at Site 16

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Well Identifier:	Shallow Monitoring Wells					Intermediate Monitoring Wells		Background Screening Criteria	Federal/State Standards
	WHF-16-2S	WHF-16-3S	WHF-16-4S	WHF-16-4S DUP	WHF-16-5	WHF-16-1	WHF-16-2		
ABB-ES Sample Identifier:	WHF16-2B	WHF16-3B	WHF16-4B	WHF16-4BA	WHF16-5	WHF16-1	WHF16-2		
Collect Date:	06-DEC-93	15-NOV-93	16-NOV-93	16-NOV-93	17-NOV-93	16-NOV-93	24-NOV-93		
Laboratory Sample No.:	90272002	90225001	90226001	90226002	90236003	90226004	90214002		
Metals and Cyanide ($\mu\text{g/l}$)									
Aluminum	12,400	--	6,280	5,170	64.8 J	27.2 J	178 J	53,360	² 200/ ² 200
Arsenic	--	4.5 J	3.1 J	--	--	1.7 J	--	ND	¹ 50/ ¹ 50
Barium	77.8 J	105 J	25.9 J	26.3 J	7.9 J	31.5 J	12.3 J	126.8	¹ 2,000/ ¹ 2,000
Beryllium	0.26 J	4.7 J	--	--	--	--	--	3.6	¹ 4/ ¹ 4
Cadmium	--	--	--	--	--	--	5	ND	¹ 5/ ¹ 5
Calcium	785 J	79,400	91,600	90,300	157 J	1,090 J	859 J	4,706	NA/NA
Chromium	35.5	219	7 J	7 J	--	--	--	872	¹ 100/ ¹ 100
Cobalt	5 J	21.3 J	--	--	--	--	--	20.7	NA/NA
Copper	14 J	43.6 J	6.6 J	6.5 J	--	8.2 J	--	67.2	TT 1,300 ² 1,000/ ² 1,000
Iron	12,400	313,000	4,640	3,370	35 J	34.5 J	135	80,066	² 300/ ² 300
Lead	5.6	15.2	6.1	4.7	--	1.8 J	1.3 J	20.6	TT 15/ ¹ 15
Magnesium	1,270 J	6,780 J	7,840	7,720	270 J	1,020 J	534 J	2,922	NA/NA
Manganese	44.4	1,050	81.1	67.2	1.7 J	4.2 J	20.5	188	² 50/ ² 50
Mercury	0.3 J	0.23	--	--	--	--	--	0.32	¹ 2/ ¹ 2
Nickel	--	82.4 J	--	--	--	10.6 J	--	744	² 100/ ² 100
Potassium	1,830 J	7,000 J	3,360 J	3,540 J	--	852 J	--	17,270	NA/NA
Silver	--	24.3 J	--	--	--	--	--	ND	¹ 100/ ¹ 100
Sodium	2,930 J	6,980 J	3,270 J	3,090 J	1,630 J	2,300 J	6,850	5,740	NA/ ¹ 60,000
Vanadium	37.3 J	987	14.2 J	11.5 J	--	--	--	335	NA/NA
Zinc	97.7	152	92.5	68	2.2 J	29	6.5 J	140	¹ 5,000/ ¹ 5,000
Cyanide	--	--	--	--	--	--	1.7 J	4.2	² 200/ ² 200

See notes at end of table.

Table 4-33 (Continued) Summary Analytical Results for Inorganic Parameters Detected in Groundwater Samples at Site 16										
Remedial Investigation and Feasibility Study, Phase IIA Technical Memorandum No. 5, Groundwater Assessment NAS Whiting Field, Milton, Florida										
Well Identifier: ABB-ES Sample Identifier: Collect Date: Laboratory Sample No.:	Intermediate Monitoring Wells				Deep Monitoring Wells			Background Screening Criteria	Federal/State Standards	
	WHF-16-3I	WHF-16-3II	WHF-16-4II	WHF-16-2I	WHF-16-3D	WHF-16-3D DUP	WHF-16-4D			
	WHF16-3C	WHF16-3CD	WHF16-4CD	WHF16-2C	WHF16-3D	WHF16-3DA	WHF16-4D		ND	'50/'50
	12-NOV-93	12-NOV-93	16-NOV-93	06-DEC-93	11-NOV-93	11-NOV-93	15-NOV-93		126.8	'2,000/'2,000
Metals and Cyanide ($\mu\text{g/l}$)										
Aluminum	82,800	552	111 J	25.1 J	1,370	2,590 J	--	53,360	'200/'200	
Arsenic	3.7 J	--	--	--	1.9 J	2 J	--	ND	'50/'50	
Barium	297	18.2 J	15.7 J	34.4 J	19.1 J	20.4 J	20.3 J	126.8	'2,000/'2,000	
Beryllium	3.6 J	--	--	--	0.32 J	0.45 J	--	3.6	'4/'4	
Cadmium	56.5	3.5 J	3.9 J	--	--	5.6	--	ND	'5/'5	
Calcium	23,000	1,370 J	1,970 J	2,120 J	2,410 J	2,420 J	6,350	4,706	NA/NA	
Chromium	228	--	--	3.4 J	4.3 J	5.1 J	3.8 J	872	'100/'100	
Cobalt	6.2 J	--	--	--	--	--	--	20.7	NA/NA	
Copper	87.1	2.5 J	--	2.8 J	2.6 J	2.4 J	--	67.2	TT 1,300 '1,000/'1,000	
Iron	83,700	555	140	546	923 J	1,230 J	223	80,066	'300/'300	
Lead	69.1	1.1 J	--	1.6 J	--	--	1.2 J	20.6	TT 15/'15	
Magnesium	8,660	514 J	459 J	1,400 J	903 J	955 J	528 J	2,922	NA/NA	
Manganese	498	52.6	18.2	115	93.4	94.1	59.1	188	'50/'50	
Mercury	0.48	--	--	0.16 J	--	--	--	0.32	'2/'2	
Nickel	38.5 J	--	--	--	--	--	--	744	'100/'100	
Potassium	4,780 J	708 J	--	--	1,890 J	1,770 J	--	17,270	NA/NA	
Silver	--	--	--	3.9 J	--	--	--	ND	'100/'100	
Sodium	13,500	6,770	3,690 J	3,330 J	23,200	23,000	3,180 J	5,740	NA/'160,000	

See notes at end of table.

Table 4-33 (Continued)
Summary Analytical Results for Inorganic Parameters Detected in Groundwater Samples at Site 16

**Remedial Investigation and Feasibility Study, Phase II A
Technical Memorandum No. 5, Groundwater Assessment
NAS Whiting Field, Milton, Florida**

Table 4-33 (Continued)
Summary Analytical Results for Inorganic Parameters Detected in Groundwater Samples at Site 16

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Well Identifier:	Intermediate Monitoring Wells				Deep Monitoring Wells			Background Screening Criteria	Federal/State Standards
	WHF-16-3I	WHF-16-3II	WHF-16-4II	WHF-16-2I	WHF-16-3D	WHF-16-3D DUP	WHF-16-4D		
ABB-ES Sample Identifier:	WHF16-3C	WHF16-3CD	WHF16-4CD	WHF16-2C	WHF16-3D	WHF16-3DA	WHF16-4D		
Collect Date:	12-NOV-93	12-NOV-93	16-NOV-93	06-DEC-93	11-NOV-93	11-NOV-93	15-NOV-93		
Laboratory Sample No.:	90221002	90221001	90226003	90272001	90220001	90220002	90225002		
Metals and Cyanide ($\mu\text{g/l}$)									
Vanadium	120	--	--	--	4.4 J	5 J	3.5 J	335	NA/NA
Zinc	451	22.3 J	25.7	8 J	14.7 J	17.8 J	3.3 J	140	¹ 5,000/ ¹ 5,000
Cyanide	1.9 J	--	--	--	--	--	--	4.2	² 200/ ² 200

¹ Primary maximum contaminant level (MCL).

² Secondary MCL.

³ Groundwater Guidance Concentration.

Notes: ABB-ES = ABB Environmental Services, Inc.

MCLs = maximum contaminant levels.

$\mu\text{g/l}$ = micrograms per liter.

■ = concentration meets or exceeds Federal or State Primary or Secondary MCLs.

-- = compound was not detected above instrument detection limits.

J = estimated concentration.

ND = compound not detected in background sample.

NA = no applicable standard currently exists.

TT = treatment techniques.

exceeding the background screening criteria. Six of the analytes, including aluminum, beryllium, chromium, iron, lead, and manganese, were detected at concentrations exceeding Federal and State Primary or Secondary MCLs.

Intermediate Depth Monitoring Wells. Twenty inorganic analytes were detected in groundwater samples collected from the intermediate depth monitoring wells at Site 16. Fifteen of the analytes, including aluminum, arsenic, barium, beryllium, cadmium, calcium, copper, iron, lead, magnesium, manganese, mercury, silver, sodium, and zinc, were detected at concentrations exceeding the background screening criteria. Six of the analytes, including aluminum, cadmium, chromium, iron, lead, and manganese, were detected at concentrations exceeding the Federal and State Primary or Secondary MCLs.

Deep Monitoring Wells. Sixteen inorganic analytes were detected in groundwater samples from the deep monitoring wells at Site 16. Four of the analytes (arsenic, cadmium, calcium, and sodium) were detected at concentrations exceeding the background screening criteria. Four of the analytes (aluminum, cadmium, iron, and manganese) were detected at concentrations exceeding Federal and State Primary or Secondary MCLs.

Field Parameter Results. Field parameter results are presented in Table 4-3. The pH values for groundwater samples collected at Site 16 ranged from 4.21 to 6.66 SUs. All but two (WHF-16-3S and WHF-16-3D) of the pH values were below the lower range for the Florida Secondary drinking water criteria of 6.5 SUs. The temperature measurements ranged from 19.8 to 23 °C, and the specific conductance ranged from 11 to 490 μ mhos/cm.

Turbidity measurements ranged from 0.98 to 2,528 NTUs. All of the groundwater samples except three (WHF-16-1, WHF-16-2I, and WHF-16-3S) had turbidity measurements above the Florida public water supply treatment technique criteria of 5 NTUs.

5.0 SUMMARY

This chapter presents a brief summary of the results of groundwater sampling and analytical activities conducted during the RI Phase IIA.

5.1 BAT GROUNDWATER SAMPLING

Shallow BAT Sample Results. Ten VOCs were detected in the shallow BAT groundwater samples, including methylene chloride, acetone, carbon disulfide, 1,2-dichloroethene, trichloroethene, benzene, ethylbenzene, 2-hexanone, xylenes (total), and toluene. Detected concentrations of acetone, methylene chloride, and carbon disulfide are all common laboratory contaminants and are believed to be attributable to sampling artifacts.

Deep BAT Sample Results. Seven VOCs were detected in seven groundwater samples collected from the deep zone of the sand-and-gravel aquifer with the BAT sampler. The detected compounds included methylene chloride, acetone, carbon disulfide, trichloroethene, benzene, 1,2-dichloroethane (DCA), and bromomethane. The detected concentrations of acetone, methylene chloride, and carbon disulfide all are common laboratory contaminants and are believed to be attributable to sampling artifacts.

5.2 MONITORING WELL GROUNDWATER SAMPLING RESULTS

5.2.1 Background Sample Analytical Results Two VOCs, benzene and acetone, and one pesticide compound, beta-benzene hexachloride, were detected in the background groundwater samples collected at the facility. The detected concentration of benzene exceeded the State Primary MCL of 1 $\mu\text{g/l}$. The source of these compounds is currently unknown.

Nineteen inorganic analytes were detected in the background groundwater samples. Background screening values were calculated for these analytes using 2 times the arithmetic mean for multiple detections or 2 times the value of a single detection.

Six of the inorganic analytes (aluminum, chromium, iron, manganese, lead, and nickel) were detected in the background groundwater samples at concentrations exceeding Federal and State Primary or Secondary MCLs.

5.2.2 North Field Hangar Area

5.2.2.1 Site 3 Underground Waste Solvent Storage Area

- 1,2-Dichloroethene, trichloroethene, tetrachloroethane, benzene, toluene, and ethylbenzene were detected in groundwater samples collected from shallow monitoring wells at concentrations that either met or exceeded Federal and State MCLs. Trichloroethene and benzene were detected in intermediate zone monitoring wells at concentrations exceeding Federal and State MCLs.

- Bis(2-ethylhexyl)phthalate was the only SVOC detected in groundwater samples collected from shallow, intermediate, and deep monitoring wells at concentrations exceeding the Federal and State Primary MCL of 6 $\mu\text{g/l}$.
- One pesticide compound, heptachlor epoxide, was detected at a concentration that exceeded Federal and State MCLs.
- Concentrations of the inorganic analytes aluminum, cadmium, iron, lead, and manganese exceeded Federal and State MCLs in groundwater samples collected from shallow, intermediate, and deep monitoring wells. Concentrations of lead in groundwater samples from shallow and intermediate depth monitoring wells and mercury in samples from shallow monitoring wells only also exceeded the Federal and State MCLs.
- The pH values of groundwater samples collected from monitoring wells were below the lower range of the Federal and State Secondary MCLs.

5.2.2.2 Site 4 North AVGAS Tank Sludge Disposal Area

- Concentrations of trichloroethene, benzene, toluene, and ethylbenzene were detected in groundwater samples collected from shallow and intermediate depth monitoring wells at concentrations exceeding the Federal and State MCLs. In addition, 1,2-dichloroethene was detected in the groundwater samples collected from shallow monitoring wells at concentrations exceeding the Federal and State MCLs.
- Eleven of the groundwater samples collected from shallow monitoring wells and two samples collected from intermediate depth monitoring wells contained BTEX (total values) at concentrations exceeding the Florida UST cleanup goal of 50 $\mu\text{g/l}$.
- Bis(2-ethylhexyl)phthalate was detected in a single groundwater sample collected from a shallow monitoring well, and the concentration detected exceeded Federal and State MCLs.
- Pesticides and PCBs were not detected in Site 4 groundwater samples.
- Aluminum, arsenic, cadmium, iron, lead, and manganese were detected in groundwater samples collected from shallow monitoring wells at concentrations exceeding the Federal and State MCLs. Aluminum, iron, lead, and manganese were detected in groundwater samples collected from intermediate monitoring wells at concentrations exceeding the Federal and State MCLs.

5.2.2.3 Site 32 North Field Maintenance Hangar Area

- Five VOCs including 1,2-dichloroethene, trichloroethene, benzene, toluene, and ethylbenzene were detected in groundwater samples collected from shallow monitoring wells at concentrations exceeding Federal and State MCLs.
- Bis(2-ethylhexyl)phthalate was detected in a single groundwater sample collected from a shallow monitoring well and the concentration detected exceeded the Federal and State MCLs.

- Eight inorganic analytes, including aluminum, antimony, cadmium, chromium, copper, iron, lead, and manganese, were detected in groundwater samples collected from shallow monitoring wells at concentrations exceeding Federal and State MCLs.
- The pH values of the groundwater samples collected from monitoring wells were less than the lower range of the Federal and State Secondary MCLs.

5.2.3 Midfield Area

5.2.3.1 Site 5 Battery Acid Seepage Pit

- Tetrachloroethene was the only VOC detected in the groundwater samples collected from shallow monitoring wells at concentrations exceeding the Federal and State MCLs.
- Two VOCs, trichloroethene and benzene, were detected in the groundwater samples collected from intermediate depth monitoring wells at concentrations exceeding the Federal and State MCLs. None of the groundwater samples collected from deep monitoring wells contained VOCs at concentrations exceeding the MCLs.
- Bis(2-ethylhexyl)phthalate was detected in groundwater samples from a single shallow monitoring well at concentrations that exceeded the Federal and State MCLs.
- Eight inorganic analytes, including aluminum, antimony, cadmium, chromium, iron, lead, manganese, and mercury, were detected in the groundwater samples collected from shallow monitoring wells at concentrations exceeding the Federal and State MCLs.
- Cadmium was the only inorganic analyte detected in the groundwater samples from intermediate monitoring wells at concentrations exceeding the Federal and State MCLs.
- Four inorganic analytes, including aluminum, cadmium, iron, and manganese, were detected in the groundwater samples collected from deep monitoring wells at concentrations exceeding the Federal and State MCLs.
- The pH values of the groundwater samples collected from monitoring wells were less than the lower range for the Federal State Secondary MCLs.

5.2.3.2 Site 6, South Transformer Oil Disposal Area

- Two VOCs (1,1-dichloroethene and trichloroethene) were detected in the groundwater samples collected from the two shallow monitoring wells at concentrations exceeding the Federal and State MCLs.
- None of the VOCs were detected at concentrations exceeding the Federal or State MCLs in the groundwater sample collected from the deep monitoring well.
- The SVOC bis(2-ethylhexyl)phthalate was detected in groundwater samples collected from both shallow and deep monitoring wells at concentrations exceeding the Federal and State MCLs.

- The pesticide compound dieldrin was detected in groundwater samples collected from shallow monitoring wells. There are currently no Federal or State MCLs for this compound.
- Five inorganic analytes, including aluminum, cadmium, iron, lead, and manganese, were detected in groundwater samples collected from shallow monitoring wells at concentrations that exceeded the Federal and State MCLs. None of the inorganic analytes detected in the groundwater sample collected from the deep monitoring well exceeded Federal or State MCLs.
- The pH values of all of the groundwater samples collected from monitoring wells were less than the lower range for the Federal and State Secondary MCLs.

5.2.3.3 Site 33, Midfield Maintenance Hangar Area

- Trichloroethene was detected in all of the groundwater samples collected from shallow monitoring wells at concentrations exceeding the Federal and State MCLs. 1,1-Dichloroethene was detected as a single occurrence at a concentration exceeding the Federal and State MCLs.
- Bis(2-ethylhexyl)phthalate was the only SVOC detected in groundwater samples collected at Site 33. The detected concentration was less than Federal and State MCLs.
- Two pesticide compounds, heptachlor epoxide and gamma-Chlordane, were detected in groundwater samples collected at Site 33. Neither compound was detected at concentrations exceeding Federal or State MCLs.
- Five inorganic analytes, including aluminum, cadmium, iron, manganese, and thallium, were detected at concentrations exceeding the Federal and State MCLs.
- The pH values of the groundwater samples collected from monitoring wells were below the lower range for the Federal and State Secondary MCLs.

5.2.4 South Field Area

5.2.4.1 Site 7, South AVGAS Tank Sludge Disposal Area

- Trichloroethene was detected in 10 of 11 groundwater samples collected from shallow monitoring wells at Site 7. Nine of the samples contained trichloroethene at concentrations that exceed the Federal and State MCLs.
- Six VOCs, including vinyl chloride, 1,2 dichloroethene, trichloroethene, benzene, toluene, and ethylbenzene, were detected in groundwater samples collected from shallow monitoring wells at concentrations exceeding the Federal and State MCLs.
- Groundwater samples collected from 3 of the 10 shallow monitoring wells contained BTEX (total values) at concentrations that exceed the Florida UST cleanup goal of 50 µg/l.

- Trichloroethene was the only VOC detected in the groundwater samples collected from intermediate monitoring wells that exceeded the Federal and State MCLs.
- Seven SVOCs were detected in groundwater samples collected from shallow monitoring wells at Site 7. None of the detected concentrations exceeded Federal or State MCLs.
- No pesticide or PCB compounds were detected in the groundwater samples collected at Site 7.
- Six inorganic analytes, including aluminum, antimony, cadmium, iron, lead, and manganese, were detected in the groundwater samples collected from shallow monitoring wells at concentrations exceeding the Federal and State MCLs. Two analytes, aluminum and iron, were detected in groundwater samples collected from intermediate monitoring wells at concentrations exceeding MCLs.
- The pH values of the groundwater samples collected from monitoring wells were below the lower range for the Federal and State Secondary MCLs.

5.2.4.2 Site 29, Auto Hobby Shop

- Two VOCs, acetone and 4-methyl-2-pentanone, were detected in groundwater samples collected from shallow monitoring wells at Site 9. Currently, no Federal or State MCLs exist for these compounds and the detected values did not exceed Florida Groundwater Guidance concentrations.
- No SVOCs, pesticides, or PCB compounds were detected in the groundwater samples collected at Site 29.
- Seven inorganic analytes, including aluminum, antimony, cadmium, chromium, iron, lead, and manganese, were detected in the groundwater samples collected from shallow monitoring wells at concentrations exceeding Federal and State MCLs.
- The pH values of the groundwater samples collected from monitoring wells were below the lower range for the Federal and State Secondary MCLs.

5.2.4.3 Site 30, South Field Maintenance Hangar Area

- Three VOCs, 1,1-dichloroethene, trichloroethene, and benzene, were detected in groundwater samples collected from shallow monitoring wells at concentrations exceeding Federal and State MCLs.
- No SVOC, pesticide, or PCB compounds were detected in the groundwater samples collected at Site 30.
- Six inorganic analytes, including aluminum, cadmium, iron, lead, and manganese, were detected in the groundwater samples at concentrations exceeding the Federal and State MCLs.
- The pH values of the groundwater samples collected from monitoring wells were below the lower range for the Federal and State Secondary MCLs.

5.3 PERIMETER AREA.

5.3.1 Northwest Disposal and Crash Crew Training Areas

5.3.1.1 Site 1, Northwest Disposal Area

- No VOCs, SVOCs, or PCB compounds were detected in groundwater samples at concentrations exceeding Federal or State MCLs.
- The pesticide compound beta-benzene hexachloride was detected in groundwater samples collected from shallow and intermediate monitoring wells. Currently, no Federal or State MCLs exist for this compound.
- Seven inorganic analytes, including aluminum, beryllium, chromium, iron, lead, manganese, and nickel, were detected at concentrations exceeding Federal and State MCLs. None of the inorganic analytes detected in the groundwater samples collected from intermediate monitoring wells exceeded Federal or State MCLs.
- The pH values of the groundwater samples collected from monitoring wells were below the lower range for the Federal and State Secondary MCLs.

5.3.1.2 Site 2, Northwest Open Disposal Area

- No VOC, pesticide, or PCB compounds were detected in the groundwater sample collected at Site 2.
- The SVOC bis(2-ethylhexyl)phthalate was detected as a single occurrence in a shallow groundwater sample at a concentration exceeding Federal and State MCLs.
- Three inorganic analytes (aluminum, chromium, and iron) were detected in groundwater samples collected from the monitoring well at concentrations exceeding Federal and State MCLs.
- The pH values of the groundwater samples collected from monitoring wells were below the lower range for the Federal and State Secondary MCLs.

5.3.1.3 Site 17, Crash Crew Training Area

- No VOCs were detected in the groundwater samples collected at the site.
- Two SVOCs, bis (2-ethylhexyl)phthalate and di-n-octylphthalate, were detected in the groundwater samples collected from shallow monitoring wells. The detected concentration of bis(2-ethylhexyl)phthalate exceeded the Federal and State MCLs. Currently, no Federal or State MCLs exist for the compound di-n-octylphthalate and the detected concentration did not exceed the Florida Groundwater Guidance concentration.
- Beta-benzene hexachloride was the only pesticide compound detected in the groundwater samples collected from shallow monitoring wells at the site. There are currently no Federal or State MCLs or guidance concentrations for the compound.

- Five inorganic analytes, including aluminum, chromium, iron, lead, and manganese, were detected in shallow groundwater samples at concentrations exceeding Federal and State MCLs.
- The pH values of the groundwater samples collected from monitoring wells were below the lower range for the Federal and State Secondary MCLs.

5.3.1.4 Site 18, Crash Crew Training Area

- No VOCs or SVOCs were detected in the groundwater samples collected from monitoring wells at the site.
- A single pesticide compound, 4,4-DDT, was detected in samples from both shallow and intermediate depth monitoring wells at the site. Currently, no Federal or State MCLs exist for this compound and the detected concentration did not exceed the Florida Groundwater Guidance concentrations.
- Three inorganic analytes, including aluminum, iron, and manganese, were detected in groundwater samples collected from the shallow monitoring wells at concentrations exceeding Federal and State MCLs. None of the inorganic analytes detected in the groundwater sample collected from the intermediate depth monitoring well exceeded the Federal or State MCLs.
- The pH values of the groundwater samples collected from monitoring wells were below the lower range for the Federal and State Secondary MCLs.

5.3.2 Southeast Disposal Area

5.3.2.1 Site 9, Waste Fuel Disposal Pit

- No VOCs, SVOCs, pesticides, or PCBs were detected in groundwater samples collected from shallow and intermediate monitoring wells.
- Two inorganic analytes, aluminum and iron, were detected in groundwater samples collected from shallow and intermediate depth monitoring wells at concentrations exceeding Federal and State MCLs.
- Two of the three pH values measured at the site were above the upper range limit for the Federal and State Secondary MCL requirements of 8.5 SUs. The majority of the pH measurements at the facility were within the acidic range between 4.5 and 6.5 SU. Therefore, it is likely that either a natural or site-related geochemical groundwater anomaly is present or alkaline grout leaked into the monitoring well sand pack during well construction activities.

5.3.2.2 Site 10, Southeast Open Disposal Area (A)

- No VOCs, SVOCs, pesticides, or PCBs were detected in the groundwater samples collected from shallow or intermediate depth monitoring wells at Site 10.
- Two inorganics analytes, aluminum and iron, were detected in the groundwater sample collected from the shallow monitoring well at concentrations that exceeded the Federal and State MCLs. None of the inorganic analytes detected

in the groundwater sample collected from the intermediate depth monitoring well exceeded the Federal or State MCLs.

- The pH values of the groundwater samples collected from monitoring wells were below the lower range for the Federal and State Secondary MCLs.

5.3.2.3 Site 11, Southeast Open Disposal Area (B)

- No VOCs were detected in groundwater samples collected from the shallow monitoring wells at concentrations exceeding Federal or State MCLs. The VOC acetone was detected in one groundwater sample from an intermediate depth monitoring well. Currently, no Federal or State MCLs exist for this compound, and the detected concentration did not exceed Florida Groundwater Guidance concentrations.
- Di-n-octylphthalate was detected in groundwater samples from two intermediate depth monitoring wells and was the only SVOC detected in the groundwater samples. Currently, no Federal or State MCLs or guidance concentrations exist for the compound.
- Four inorganics analytes, including aluminum, iron, lead, and manganese, were detected in groundwater samples collected from shallow monitoring wells at concentrations that exceeded Federal and State MCLs. Two analytes, aluminum and iron, were detected in the groundwater samples collected from intermediate depth monitoring wells at concentrations that exceeded the Secondary MCLs.
- The pH values for groundwater samples collected at the site ranged from 5.7 to 11.29 SUs. All of the values except one were below the lower range for the Federal and State Secondary MCLs of 6.5 SUs. The single value above the lower range limit exceeded the upper range limit of the requirement. It is likely that this value represents either a natural or site-related geochemical groundwater anomaly that is present or alkaline grout leaked into the monitoring well sand pack during well construction activities.

5.3.2.4 Site 12, Tetraethyl Lead Disposal Area

- No VOCs, SVOCs, pesticides, or PCBs were detected in the groundwater sample collected at Site 12.
- Cadmium was the only inorganic analyte detected at concentrations exceeding the Federal and State MCLs.
- The pH value measured for the groundwater sample was below the lower limit for the Federal and State Secondary MCL.

5.3.2.5 Site 13, Sanitary Landfill

- Acetone was detected in one of two groundwater samples collected from a shallow monitoring well and was not detected in samples from the intermediate monitoring wells. Currently, no Federal or State MCLs exist for the acetone, and the detected concentration did not exceed the Florida Groundwater Guidance concentration.

- Bis(2-ethylhexyl)phthalate was detected in one groundwater sample collected from a shallow monitoring well but was not detected in the groundwater sample collected from the intermediate monitoring well. The detected concentration exceeded the Federal and State MCLs.
- Pesticide and PCB compounds were not detected in the groundwater samples collected at Site 13.
- Four inorganic analytes, including aluminum, cadmium, iron, and manganese, were detected in groundwater samples collected from the shallow monitoring wells at concentrations that exceeded the Federal and State MCLs. Manganese was the only inorganic analyte detected in the groundwater samples collected from the intermediate depth monitoring well at concentrations that exceeded the Federal and State MCLs.
- The pH values of the groundwater samples collected from Site 13 monitoring wells were below the lower range for the Federal and State Secondary MCLs.

5.3.2.6 Site 14, Short-Term Sanitary Landfill

- No VOCs were detected in the groundwater samples collected from shallow or intermediate depth monitoring wells at the site.
- Bis(2-ethylhexyl)phthalate was detected in groundwater samples collected from both the shallow and intermediate depth monitoring wells at concentrations that exceeded the Federal and State MCLs.
- No pesticide or PCB compounds were detected in the groundwater samples collected at Site 14.
- Two inorganic analytes, aluminum and magnesium, were detected in groundwater samples collected from the shallow monitoring wells at concentrations that exceeded the Federal and State MCLs. None of the inorganic analytes detected in the groundwater samples collected from the intermediate monitoring wells exceeded the Federal or State MCLs.
- The pH values of the groundwater samples collected from monitoring wells were below the lower range for the Federal and State Secondary MCLs.

5.3.3 Southwest Disposal Area

5.3.3.1 Site 15, Southwest Landfill

- No VOCs detected in groundwater samples collected from shallow, intermediate, or deep monitoring wells at Site 15 exceeded Federal or State MCLs.
- Bis(2-ethylhexyl)phthalate was detected in two groundwater samples collected from shallow monitoring wells at concentrations exceeding the Federal and State MCL. No SVOCs were detected in the groundwater samples collected from the intermediate and deep monitoring wells.
- No pesticide or PCB compounds were detected in groundwater samples collected from shallow, intermediate, or deep monitoring wells at Site 15.

- Four inorganic analytes, including aluminum, cadmium, iron, and manganese, were detected in the groundwater samples collected from shallow monitoring wells at concentrations that exceeded the Federal and State MCLs. Cadmium was the only inorganic analyte that was detected in the groundwater samples collected from intermediate and deep monitoring wells at concentrations that exceeded the Federal and State MCLs.
- The pH values of the groundwater samples collected from monitoring wells were below the lower range for the Federal and State Secondary MCLs.

5.3.3.2 Site 16, Open Disposal and Burning Area

- No VOCs were detected in the groundwater samples collected from shallow monitoring wells at concentrations exceeding the Federal and State MCLs.
- Three VOCs, 1,2-dichloroethene, trichloroethene, and benzene, were detected in the groundwater samples collected from the intermediate depth monitoring wells at concentrations that exceeded the Federal and State MCLs. No VOCs were detected in the groundwater samples collected from the deep monitoring wells at Site 16.
- No SVOCs were detected in shallow or deep groundwater samples.
- Bis(2-ethylhexyl)phthalate was detected in groundwater samples from both the shallow and intermediate depth monitoring wells at Site 16. However only the concentrations detected in the intermediate depth monitoring wells exceeded the Federal and State MCLs. No SVOCs were detected in the groundwater samples collected from the deep monitoring wells.
- No pesticide or PCB compounds were detected in any of the groundwater samples collected at Site 16.
- Six inorganic analytes, including aluminum, beryllium, chromium, iron, lead, and manganese, were detected in groundwater samples collected from shallow monitoring wells at concentrations that exceeded the Federal and State MCLs.
- Six inorganic analytes, aluminum, cadmium, chromium, iron, lead, and manganese, were detected in the intermediate monitoring wells at concentrations that exceeded the Federal and State MCLs.
- Groundwater samples collected from deep monitoring wells contained four inorganic analytes (aluminum, cadmium, iron, and manganese) at concentrations that exceed Federal and State MCLs.
- With the exception of two groundwater samples, the pH values of all of the samples collected from monitoring wells were below the lower range for the Federal and State Secondary MCL.

6.0 PROFESSIONAL REVIEW CERTIFICATION

The groundwater assessment contained in this report was prepared using sound principles and judgment. This assessment is based on the geologic investigation and associated information detailed in the text and appended to this report. If conditions are determined to exist that differ from those described, the undersigned geologist should be notified to evaluate the effects of any additional information on the assessment described in this report. Technical Memorandum No. 5, Groundwater Assessment, was developed for NAS Whiting Field in Milton, Florida, and should not be construed to apply to any other site.

Gerald A. Walker
Gerald A. Walker
Professional Geologist
P.G. No. 1180

November 20, 1995
Date

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APPENDIX A

PHASE IIA, RI BAT SAMPLING TECHNICAL REPORT

**PHASE II-A REMEDIAL INVESTIGATION
DATA RELEASE**

**Piezocene Penetrometer Tests and
In-Situ Bengt-Arne-Torstensson (BAT) Groundwater Sampling**

**Naval Air Station Whiting Field
Milton, Florida**

June 1993

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GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
ASTM	American Society for Testing and Materials
AVGAS	aviation gasoline
BAT	Bengt-Arne-Torstensson
bls	below land surface
CRDL	contract required detection limit
DCA	dichloroethane
1,2-DCE	1,2-dichloroethene
DQOs	data quality objectives
ID	inside diameter
MCLs	maximum contaminant levels
$\mu\text{g/l}$	micrograms per liter
NAS	Naval Air Station
NEESA	Naval Energy and Environmental Support Activity
PCPT	piezocone penetrometer test
QC	quality control
RI	Remedial Investigation
TCE	trichloroethene
USEPA	U.S. Environmental Protection Agency
VOC	volatile organic compounds

1.0 INTRODUCTION

A piezocone penetrometer test (PCPT) exploration and Bengt-Arne-Torstensson (BAT) groundwater sampling program were conducted at Naval Air Station (NAS) Whiting Field between October 12 and November 2, 1992. Williams Earth Sciences of Clearwater, Florida, under the supervision of ABB Environmental Services, Inc. (ABB-ES), personnel, performed the PCPT soundings and collected the BAT groundwater samples.

2.0 PIEZOCONE PENETROMETER TEST (PCPT) EXPLORATION AND BENGT-ARNE-TORSTENSSON (BAT) GROUNDWATER SAMPLING OBJECTIVES

The objective of the PCPT exploration program at NAS Whiting Field was to define the stratigraphy and determine shallow and deep BAT groundwater sampling depths at each sounding location.

Groundwater samples were collected to determine whether observed groundwater contamination in the industrial area is migrating toward Clear Creek and Site 15 (Southwest Landfill) and Site 16 (Open Disposal and Burn Area).

3.0 PCPT EXPLORATIONS

3.1 PCPT METHODOLOGY. PCPT explorations were performed in accordance with American Society for Testing and Materials (ASTM) Designation D3441-86, *Standard ASTM Method for Deep, Quasi-Static, Cone and Friction-Cone Penetration Tests of Soils*. Specifically, a stainless-steel cone tip (equipped with electronic sensors) connected to stainless-steel rods was hydraulically driven into the overburden soils. Measurements of end-bearing resistance, friction resistance, and pore pressure were recorded throughout each sounding to define the lithology and locate the water table.

Analog signals from four sensors in the cone tip were digitized for data logging. Analysis of the digitized data was done in the field using a data acquisition software system. Based on the cone readings a lithologic description of the soils was computed with the aid of the software package.

3.2 SUMMARY OF PCPT EXPLORATIONS. A total of seven PCPT soundings were conducted in the southwestern part of the installation (Figure 1). Depths of the soundings are summarized in Table 1. PCPT sounding lithologic logs are presented in Appendix A.

During the PCPT exploration program, the cone tip met refusal in very dense sands at various depths at all sounding locations. In order to gain lithologic data beyond the dense sands, a drill rig bored through the dense sand collecting split-spoon samples at 5-foot intervals until less dense material was encountered. Once the less dense material was encountered, 2-inch inside diameter (ID) steel casing was placed into the borehole to provide additional support for the piezocone rod and the PCPT sounding continued until refusal. This method was employed successfully at only one location (WHF-CPT-01). At the remaining six locations, the soil was too dense to push the PCPT rod through and the soundings were stopped at the actual depths listed in Table 1.

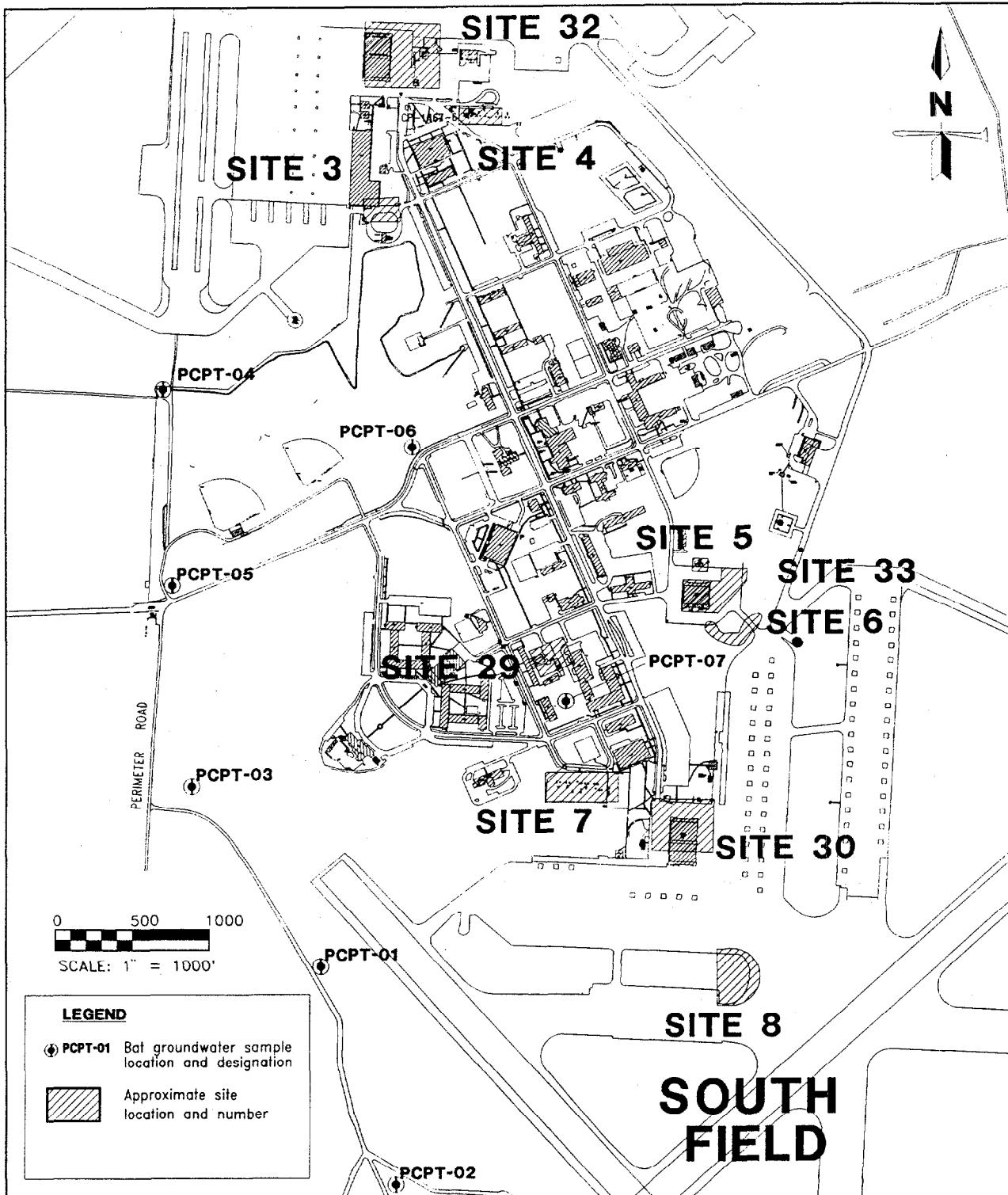


FIGURE 1
RI PHASE IIA BAT GROUNDWATER SAMPLING LOCATIONS

H:\WHITING\7560-16\TEC-MEM4\BASEWELL\KGP\03\13\95



PHASE IIA REMEDIAL INVESTIGATION DATA RELEASE

**NAS WHITING FIELD
MILTON, FLORIDA**

Table 1
Summary of PCPT Soundings

Phase II-A Remedial Investigation Data Release
NAS Whiting Field
Milton, Florida

Date	PCPT Sounding	Proposed Depth (feet bls)	Actual Depth (feet bls)
10-12-92	WHF-2A-CPT-01	180	111
10-12-92	WHF-2A-CPT-02	180	130
10-13-92	WHF-2A-CPT-03	180	96
10-14-92	WHF-2A-CPT-04	180	75
10-14-92	WHF-2A-CPT-05	180	110
10-15-92	WHF-2A-CPT-06	180	99
10-15-92	WHF-2A-CPT-07	180	85

Notes: PCPT = piezocone penetrometer test.
bls = below land surface.

4.0 BAT GROUNDWATER SAMPLING

4.1 BAT METHODOLOGY. The BAT groundwater sampling technique was used to collect groundwater samples for volatile organic compound (VOC) analysis. The following paragraphs describe the methodology used during the NAS Whiting Field Phase II-A Remedial Investigation (RI) field program.

Once the groundwater sampling depth was determined from the PCPT soundings, a drill rig was used to advance a borehole to approximately 2 to 3 feet above the desired sampling location. A sampling device connected to a pushrod was lowered to the bottom of the borehole and was manually driven (150-pound hammer) 2 to 3 feet beyond the bottom of the borehole to prevent drilling mud from being sampled. Once the sampling depth was reached, the pushrod was retracted approximately 6 inches, opening the sampling device to the formation fluids.

A hermetically sealed evacuated vial was then lowered into the pushrod through the use of a weighted sampling assembly. The assembly mechanism contained a double-ended hypodermic needle, which first pierced the sampling device chamber seal, followed immediately thereafter by the vial seal, located in the vial screw cap. Formation fluids were drawn into the vial until the pressure in the vial was equivalent to the formation pore fluid pressure. When the sampling assembly was pulled from the rod tip, the needle was pulled from both seals, and both the vial and tip were resealed.

The BAT procedure was used to obtain groundwater in a closed system, with little opportunity for cross contamination, human contact, volatilization, or changes resulting from exposure to surface pressures of the atmosphere. Although some headspace existed in the vial, this headspace is equivalent to the pore fluid pressure of the natural formation and research has shown that the sample integrity is greater than if sampled by more conventional methods, such as a bailer.

4.2 SUMMARY OF BAT GROUNDWATER SAMPLING PROGRAM. A total of 14 groundwater samples were collected from the 7 exploration locations. One sample was collected from the water table and one sample was collected from the sand and gravel aquifer where the installation water supply wells are screened. Groundwater sample identification and sampling depths are summarized in Table 2.

The groundwater samples were shipped to CH₂M Hill Laboratory, Montgomery, Alabama, for VOC analysis. Samples were collected, analyzed, and reported in accordance with Naval Energy and Environmental Support Activity (NEESA) Level E data quality objectives (DQOs).

5.0 INTERPRETATION OF THE VOLATILE ORGANIC COMPOUND (VOC) ANALYSIS RESULTS

Because the BAT groundwater sampling method is not a U.S. Environmental Protection Agency (USEPA) approved method, the data are appropriate for preliminary screening but would not support risk assessment conclusions or decision making relative to response actions. Although direct comparison of this Level E screening data to Florida and Federal maximum contaminant levels (MCLs) cannot be made (to support risk assessment conclusions), reference to MCLs will be made for comparison purposes.

Table 2
BAT Groundwater Sampling Summary

Phase II-A Remedial Investigation Data Release
 NAS Whiting Field
 Milton, Florida

Date	Groundwater Sample	Sampling Depth (feet bls)
10-13-92	WHF-2A-WP-01-01	107
10-17-92	WHF-2A-WP-01-02	170
10-13-92	WHF-2A-WP-02-01	113
10-19-92	WHF-2A-WP-02-02	178
10-20-92	WHF-2A-WP-03-01	129
10-20-92	WHF-2A-WP-03-01A	129
10-26-92	WHF-2A-WP-03-02	183
10-27-92	WHF-2A-WP-04-01	128
10-28-92	WHF-2A-WP-04-02	183
10-30-92	WHF-2A-WP-05-01	128
10-30-92	WHF-2A-WP-05-02	198
10-31-92	WHF-2A-WP-06-01	134
10-31-92	WHF-2A-WP-06-02	178
11-1-92	WHF-2A-WP-07-01	133
11-1-92	WHF-2A-WP-07-02	188

Notes: WHF-2A-WP-03-01A is a duplicate sample.
 bls = below land surface.

Results of the VOC analysis will be presented in two sets, the water table set and the production set. A summary of the VOCs detected in the 14 groundwater samples is presented in Tables 3 and 4. Table 5 presents the results for the QC samples collected during this event.

5.1 VOC RESULTS IN THE WATER TABLE SAMPLES. A total of six VOC compounds were detected in the water table groundwater samples collected from the seven sampling locations (Table 3). The detected compounds included methylene chloride, acetone, carbon disulfide, 1,2-dichloroethene (DCE), trichloroethene (TCE), benzene, ethylbenzene, xylene, 2-hexanone, toluene, and xylene.

Methylene chloride was detected in six of the seven samples at concentrations ranging from 2 to 11 micrograms per liter ($\mu\text{g/l}$). Acetone was detected in four samples at concentrations ranging from 7 J to 11 $\mu\text{g/l}$. Both methylene chloride and acetone were detected at low concentrations (less than 15 $\mu\text{g/l}$) in the laboratory preparation blanks, trip blanks, and field blanks. Methylene chloride was also detected in the rinsate blanks. Due to the presence of these two VOCs in the laboratory blanks at a concentration of less than five times the blank concentration (the highest concentration) and the other quality control (QC) blanks, it appears that both methylene chloride and acetone are artifacts of laboratory analysis.

Carbon disulfide was detected in six of the seven samples at concentrations ranging from 4 to 49 $\mu\text{g/l}$. The source of the carbon disulfide, as believed during the Phase I RI, is the BAT sampling system. The septum of the collection vials is composed of butyl rubber, which is required to hold a vacuum against water pressure and perforate easily while sealing completely after sampling is complete. Less pliable inert septa, such as Teflon™, are not acceptable. Carbon disulfide was also detected in the rinsate blanks, trip blanks, and the field blanks.

1,2-DCE was detected at one location (WP-06-01 at 96 $\mu\text{g/l}$). WP-06 is located 1,100 feet downgradient of Site 3 where 1,2-DCE was detected in the shallow water table BAT samples (118 feet below land surface [bls]) during the Phase I RI. It has not yet been determined that Site 3 is the source of the 1,2-DCE. Similar to the detection of 1,2-DCE, trichloroethene (TCE) was detected at WP-06-01 (80 $\mu\text{g/l}$) and at the Phase I Site 3 water table locations.

1,2-DCE (1 J $\mu\text{g/l}$) and TCE (9 J $\mu\text{g/l}$) were also detected at location WP-02-01. Both concentrations were below the contract required detection limit (CRDL). WP-02-01 is located along the southwest perimeter road approximately 1,000 feet from the South Field Runway 27. WP-02-01 is located downgradient of the South Field Maintenance Hanger (Site 30) where TCE has been detected in both subsurface soil and groundwater samples.

Xylene (2 J $\mu\text{g/l}$) was detected below the CRDL in the water table sample collected from location WP-01-01 and above the CRDL at WP-06-01 (64 mg/l). WP-01-01 is located downgradient of the South Aviation Gasoline (AVGAS) Tank Sludge Disposal Area (Site 7) where xylene was detected in monitoring well WHF-7-1 at 1,000 $\mu\text{g/l}$.

Expected VOCs (benzene, toluene, ethyl benzene, and xylenes [BTEX] and solvents), from site related releases within the industrial area, were not detected at sampling locations WP-03-01, WP-04-01, WP-05-01, WP-06-01, and WP-07-01.

5.2 VOC RESULTS FROM THE PRODUCTION ZONE GROUNDWATER SAMPLES. A total of seven VOCs were detected from the seven deeper (production) zone samples of the sand and gravel aquifer (Table 4). The detected compounds included methylene chloride, acetone, carbon disulfide, TCE, benzene, 1,2-dichloroethane (DCA), and bromoethane.

Table 3
Summary of Shallow BAT Groundwater Sample Analytical Results

Phase II-A Remedial Investigation Data Release
 NAS Whiting Field
 Milton, Florida

Sample Number	Methylene Chloride	Acetone	Carbon Disulfide	1,2-DCE	TCE	Benzene	Ethyl benzene	Xylene	2-Hexanone	Toluene
WP-01-01	9 J	11	--	--	--	--	--	2 J	--	--
WP-02-01	2 J	9 J	4 J	1 J	9 J	--	--	--	--	--
WP-03-01	2 BJ	--	14	--	--	--	--	--	--	--
WP-03-01A	--	--	10	--	--	--	--	--	--	--
WP-04-01	11 B	7 BJ	--	--	--	--	--	--	--	--
WP-05-01	3 BJ	--	49	--	--	--	--	--	--	--
WP-06-01	1 BJ	7 J	24	96	80	340	96	64	2 J	4 J
WP-07-01	--	--	9 J	--	--	--	--	--	--	--

¹ Duplicate sample.

Notes: All results are expressed in micrograms per liter ($\mu\text{g/l}$).

DCE = dichloroethene.

TCE = trichloroethene.

DCA = dichloroethane.

J = reported concentration is an estimated value.

B = contamination found in the method blank sample.

-- = not detected.

Table 4
Summary of Deep BAT Groundwater Sample Analytical Results

Phase II-A Remedial Investigation Data Release
 NAS Whiting Field
 Milton, Florida

Sample Number	Methylene Chloride	Acetone	Carbon Disulfide	TCE	Benzene	1,2-DCA	Bromoethane
WP-01-02	-	390	-	--	160	--	--
WP-02-02	4 J	--	2 J	--	--	--	--
WP-03-02	2 BJ	--	--	4 J	--	3 J	--
WP-04-02	5 BJ	--	2 J	--	--	--	1 J
WP-05-02	5 BJ	--	18	--	--	--	--
WP-06-02	4 BJ	--	20	--	--	--	--
WP-07-02	1 BJ	--	17	2 J	--	--	--

Notes: All results are expressed in micrograms per liter ($\mu\text{g/l}$).
 TCE = trichloroethene.
 DCA = dichloroethane.
 -- not detected.
 J = reported concentration is an estimated value.
 B = contamination found in the method blank sample.

Table 5
Summary of QC BAT Groundwater Sample
Analytical Results

Phase II-A Remedial Investigation Data Release
 NAS Whiting Field
 Milton, Florida

Sample Number	Methylene Chloride	Acetone	Carbon Disulfide
WP-RB-01	3 J	--	--
WP-RB-02	--	--	--
WP-RB-03	2 BJ	--	1 J
WP-RB-04	1 BJ	--	8 J
WP-TB-01	2 J	17	--
WP-TB-02	2 J	9 J	--
WP-TB-03	4 J	18	--
WP-TB-04	--	--	--
WP-TB-05	2 BJ	15	--
WP-TB-06	5 BJ	--	--
WP-TB-07	6 BJ	--	1 J
WP-TB-08	6 BJ	--	--
WP-TB-09	6 BJ	--	1 J
WP-TB-10	7 BJ	9 J	1 J
WP-FB-01	1 J	--	--
WP-FB-02	1 BJ	--	31

Notes: All results are expressed in micrograms per liter ($\mu\text{g/l}$).

J = reported concentration is an estimated value.

-- = not detected.

B = contamination found in the method blank sample.

As mentioned in Section 5.1, methylene chloride and acetone appear to be artifacts of laboratory analysis because of their presence in the associated QC blanks. The detection of carbon disulfide can be attributed to the butyl rubber septa in the collection vials (see Section 5.1).

TCE (WP-03-02, 4 $\mu\text{g/l}$), 1,2-DCA (WP-03-02, 3 $\mu\text{g/l}$), and bromoethane (WP-04-02, 1 $\mu\text{g/l}$) were all detected below the CRDLs. Bromomethane was reported below the CRDL at 1 $\mu\text{g/l}$ in the BAT sample from WP-04-02.

Benzene was detected at WP-01-02 at 160 $\mu\text{g/l}$. The location of WP-01-02 is downgradient of Site 7 where benzene was detected in monitoring well WHF-7-1 at 8,800 $\mu\text{g/l}$ during the Verification Study. The lack of any benzene in the water table sample WP-01-01 may be an indication that the contaminated groundwater at Site 7 is being driven deeper into the aquifer under dipping clay layers or by infiltrating groundwater; therefore, not being detected in the water table component of the aquifer. The detection of benzene deeper in the aquifer and not at the water table was also encountered (further downgradient, west of Site 16) during the Phase I BAT sampling program. These data suggest that the source of the VOC contamination is the southern industrial area. Confirmation monitoring wells will be installed upgradient and downgradient of Site 16 during the Phase II-A RI.

6.0 SUMMARY

The results of the PCPT and BAT explorations provided both lithologic and groundwater quality information at locations between the industrial area and Clear Creek Sites 15 and 16.

Based on the results of the groundwater sampling and VOC analysis, there does not appear to be a westward component of VOC contaminant migration from the industrial area to Clear Creek. However, there does appear to be southwesterly component of VOC (i.e., benzene, 160 $\mu\text{g/l}$ at WHF-2A-CPT-01) migration from the industrial area towards Sites 15 and 16 and Clear Creek. This detection of benzene at WHF-2A-CPT-01 in the deeper zone suggests that the benzene found deeper in the aquifer, west of Site 16, may be a result of its migration from upgradient sources in the industrial area.

Monitoring wells will be installed and sampled upgradient of Sites 15 and 16 to determine if the industrial source area contamination is migrating towards the sites and Clear Creek.

APPENDIX A

PCPT SOUNDING LOGS

TITLE: NAVAL AIR STATION WHITING FIELD				LOG of WELL: N/A	BORING NO. WHF-2A-CPT-01			
CLIENT: SOUTHNAVFACENGCOM				PROJECT NO: RI PHASE IIA				
CONTRACTOR: Williams Earth Science Inc. (WESI)				DATE STARTED: 10/12/92	COMPLTD: 10/17/92			
METHOD: Cone Penetrometer	CASE SIZE: N/A		SCREEN INT.: N/A	PROTECTION LEVEL: D				
TOC ELEV.: N/A FT.	MONITOR INST.: OVA		TOT DPTH: 170FT.	DPTH TO ♦ 105 FT.				
LOGGED BY: WESI	WELL DEVELOPMENT DATE: N/A			SITE: WHITING FIELD				
DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5				Sand to silty sand. Sand Sand to silty sand.	/\	SM/SP SP		
10					/\	SM/SP		
15					/\	SP		
20					/\			
25				Sand	/\			
30					/\			
35					/\			
40				Sand to silty sand.	/\	SM/SP SP		
45					/\			
50				Sand	/\			
55					• • •	SW/SP SP • • • SW/SP		
60				Gravelly sand to sand. Sand Gravelly sand to sand.	• • •	SW/SP		

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-2A-CPT-01
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Williams Earth Science Inc. (WESI)		DATE STARTED: 10/12/92	COMPLTD: 10/17/92
METHOD: Cone Penotrometer	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 170FT.	DEPTH TO 105 FT.
LOGGED BY: WESI	WELL DEVELOPMENT DATE: N/A		SITE: WHITING FIELD

DEPTH F.T.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
Continued from PAGE 1								
65				Gravelly sand to sand.	•••	SW/SP		
70				Sand	•••	SP		
75				Gravelly sand to sand.	•••	SW/SP		
80				Sand	•••	SP		
85				Gravelly sand to sand.	•••	SW/SP		
90				Sand	•••	SP		
95				Gravelly sand to sand.	•••	SW/SP		
100				Sand	•••	SP		
105'				Sand to silty sand.	•••	SM/SP		
110				Sand	•••	SP		
115				SAND: Grey, fine, trace gravel.	•••	SP	37,50/5",--	
120				SAND: Grey, fine to medium, little coarse sand and gravel.	•••	SP	33,41,42	
				N/A	•••	SP	31,32,30	
				SAND: Grey, fine to medium, little coarse, dark red clayey fine sand lenses.	•••	SP	17,24,32	

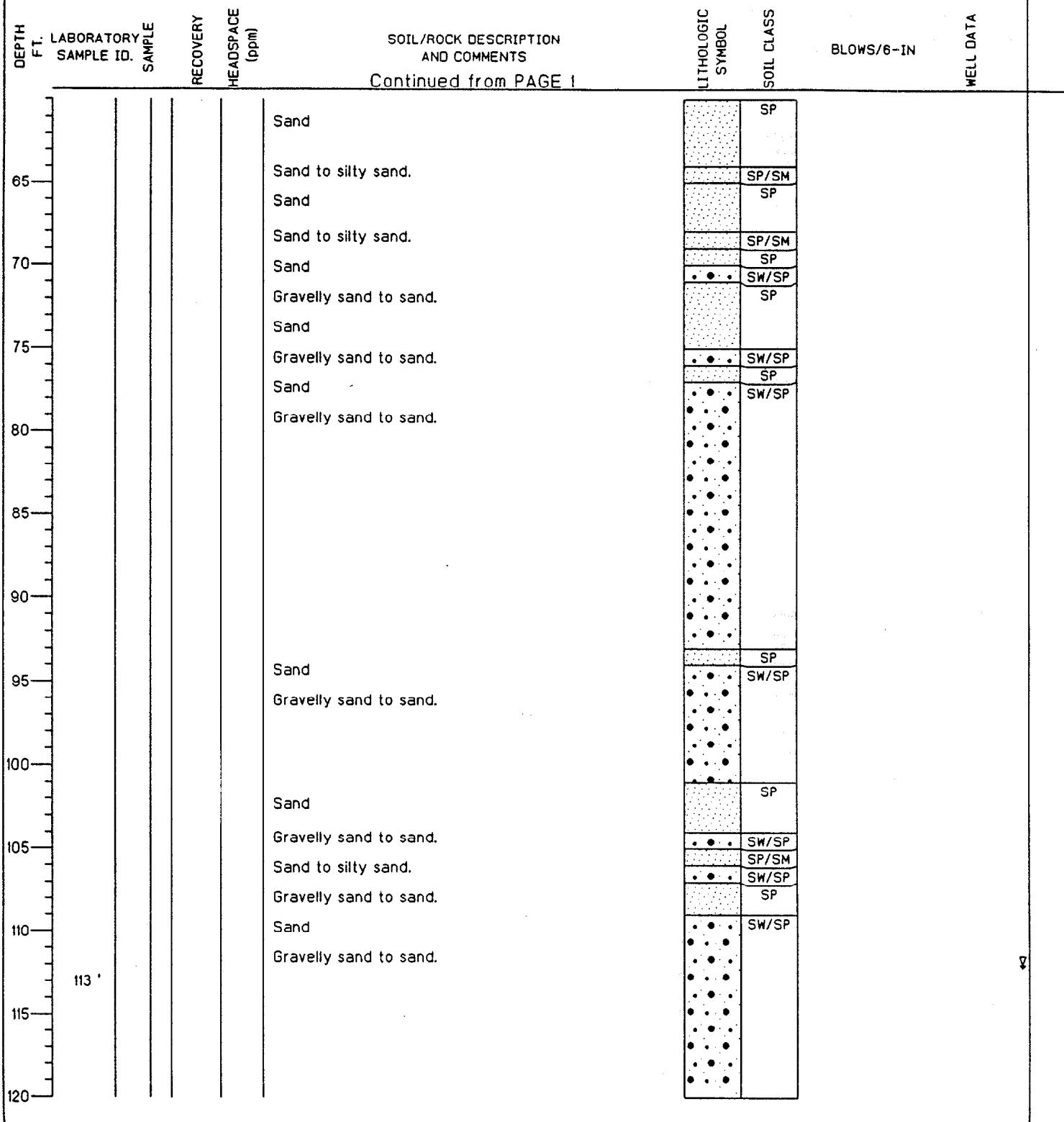
TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-2A-CPT-01
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE IIA
CONTRACTOR: Williams Earth Science Inc. (WESI)		DATE STARTED: 10/12/92	COMPLTD: 10/17/92
METHOD: Cone Penetrometer	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: 0
TOC ELEV: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 170FT.	DEPTH TO ↓ 105 FT.
LOGGED BY: WESI	WELL DEVELOPMENT DATE: N/A		SITE: WHITING FIELD

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY %	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
Continued from PAGE 2								
		0.8/1.5		0 SAND: Grey, coarse to fine, little gravel, grading to fine sand at 0.2.	• • •	SW	32,34,28	
125		0.1/1.5		0 SAND: Light grey, fine to medium.	SP		39,50/6",--	
130		0.3/1.5		0 Same as above, trace coarse.	SP		49,50/6",--	
135								
140								
145								
150								
155								
160								
165								
170'								
175								
180								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A		BORING NO. WHF-2A-CPT-02
CLIENT: SOUTHNAVFACENGCOM				PROJECT NO: RI PHASE IIA
CONTRACTOR: Williams Earth Science Inc. (WESI)		DATE STARTED: 10/12/92		COMPLTD: 10/19/92
METHOD: Cone Penetrometer	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D	
TOC ELEV: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 178FT.	DPTH TO 112 FT.	
LOGGED BY: WESI	WELL DEVELOPMENT DATE: N/A		SITE: WHITING FIELD	

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5				Silty sand to sandy silt. Sand to silty sand.	/\ / \ / \ /	SM/ML		
10				Silty sand to sandy silt. Sandy silt to clayey silt. Sand to silty sand.	/\ / \ / \ /	SP/SM		
15				Sand	/\ / \ / \ /	ML		
20				Clayey silt to silty clay. Silty sand to sandy silt. Gravelly sand to sand.	/\ / \ / \ /	SP/SM		
25				Sand	/\ / \ / \ /	SP		
30				Gravelly sand to sand. Sand	• • •	ML/CL		
35					• • •	SM/ML		
40				Sand to silty sand.	• • •	SW/SP		
45				Sand	• • •	SP		
50				Gravelly sand to sand.	• • •	SP/SM		
55				Sand	• • •	SP		
60					• • •	SW/SP		
					• • •	SP		

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-2A-CPT-02
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Williams Earth Science Inc. (WESI)		DATE STARTED: 10/12/92	COMPLTD: 10/19/92
METHOD: Cone Penetrometer	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 178FT.	DPTH TO ↓ 112 FT.
LOGGED BY: WESI	WELL DEVELOPMENT DATE: N/A		SITE: WHITING FIELD

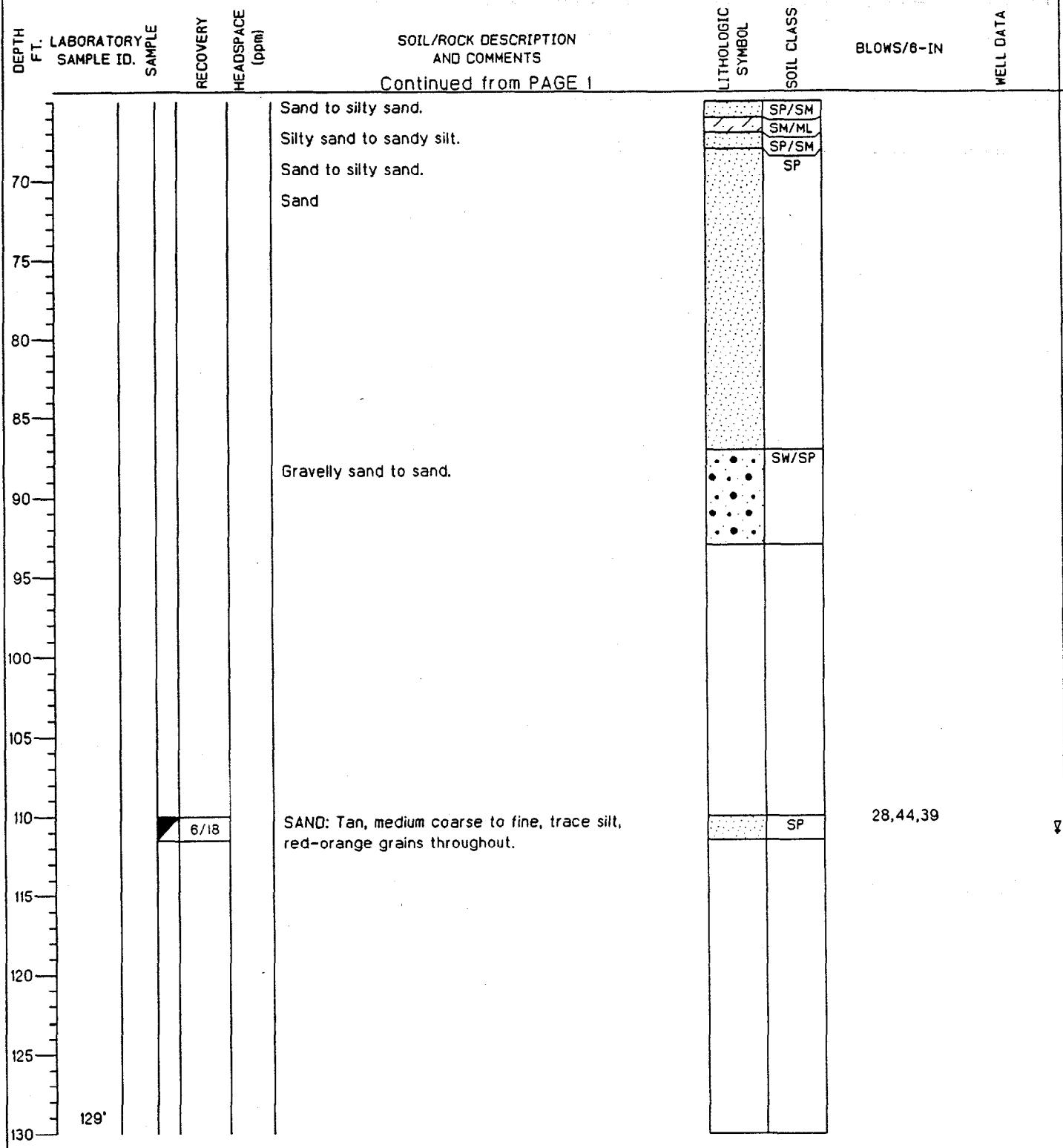


TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-2A-CPT-02
CLIENT: SOUTHNAYFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Williams Earth Science Inc. (WESI)		DATE STARTED: 10/12/92	COMPLTD: 10/19/92
METHOD: Cone Penetrometer	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 178FT.	DPHTH TO ↓ 112 FT.
LOGGED BY: WESI	WELL DEVELOPMENT DATE: N/A	SITE: WHITING FIELD	

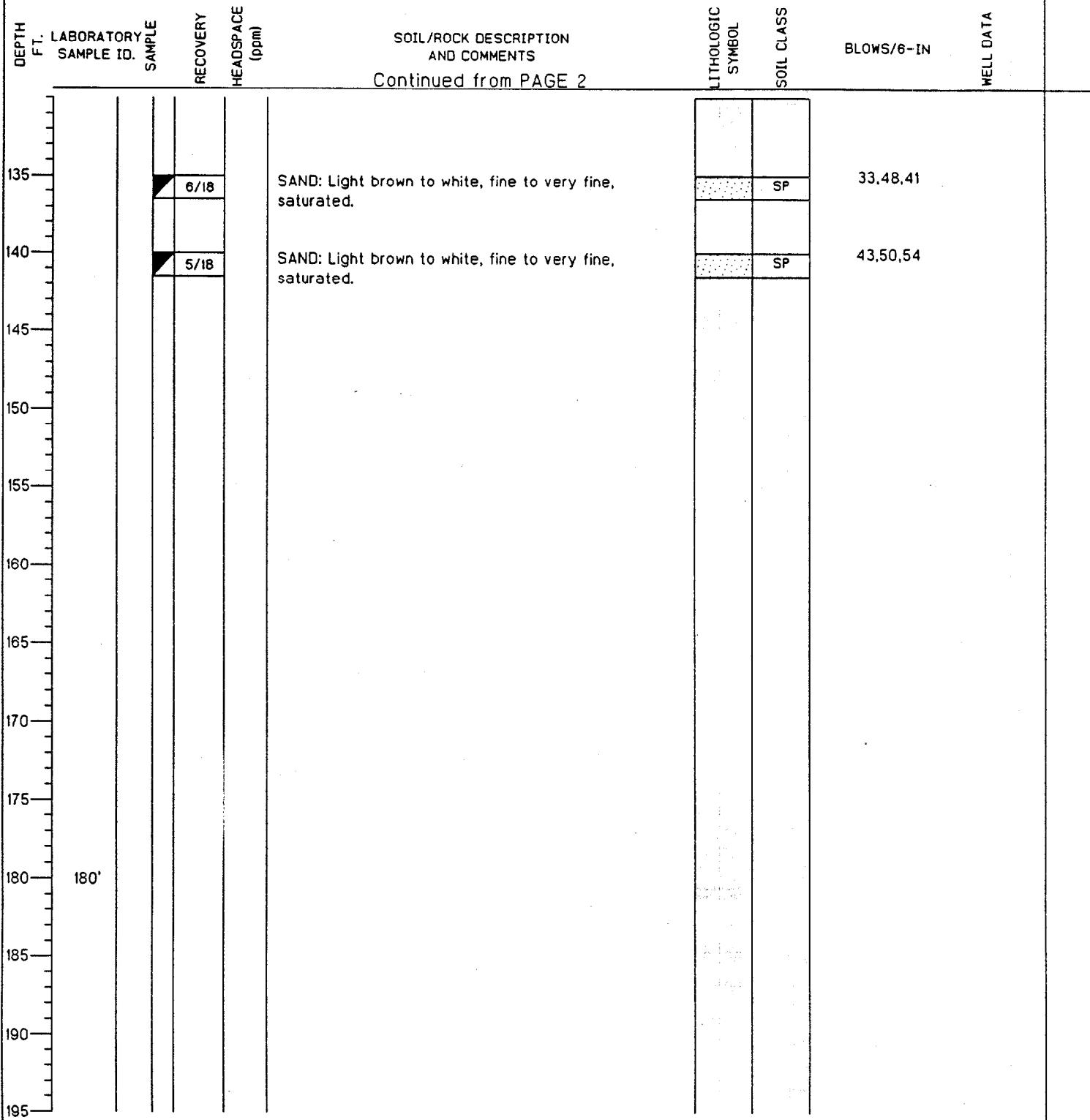
DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				Continued from PAGE 2					
125				Gravelly sand to sand.					
130									
135									
140		6/18		SAND: Purple, white and tan, fine to very fine, some clay at 140 ft. bls.			SP	27,35,42	
145									
150		6/18		SAND: Light brown, very fine to medium, some clay and silt.			SP	47,50/4"	
155									
160									
165									
170									
175'									
180									

TITLE: NAVAL AIR STATION WHITING FIELD				LOG of WELL: N/A	BORING NO. WHF-2A-CPT-03			
CLIENT: SOUTHNAVFACENGCOM				PROJECT NO: RI PHASE IIA				
CONTRACTOR: Williams Earth Science Inc. (WESI)				DATE STARTED: 10/13/92	COMPLTD: 10/26/92			
METHOD: Cone Penetrometer	CASE SIZE: N/A		SCREEN INT.: N/A	PROTECTION LEVEL: D				
TOC ELEV: N/A FT.	MONITOR INST.: OVA		TOT DPTH: 183FT.	DPTH TO ♦ 111 FT.				
LOGGED BY: WESI	WELL DEVELOPMENT DATE: N/A				SITE: WHITING FIELD			
DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5				Sandy silt to clayey silt. Silty sand to sandy silt. Sand to silty sand. Silty sand to sandy silt. Sand to silty sand.	ML SM/ML SP/SM SM/ML SP/SM			
10				Sand	SP			
15				Gravelly sand to sand.	SW/SP			
20				Sand	SP			
25				Gravelly sand to sand.	SW/SP			
30				Sand	SP			
35				Gravelly sand to sand.	SW/SP			
40				Sand	SP			
45				Gravelly sand to sand.	SW/SP			
50				Sand	SP			
55								
60								
65								SP/SM

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-2A-CPT-03
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Williams Earth Science Inc. (WESI)		DATE STARTED: 10/13/92	COMPLTD: 10/26/92
METHOD: Cone Penotrometer	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 183FT.	DEPTH TO \downarrow 111 FT.
LOGGED BY: WESI	WELL DEVELOPMENT DATE: N/A		SITE: WHITING FIELD

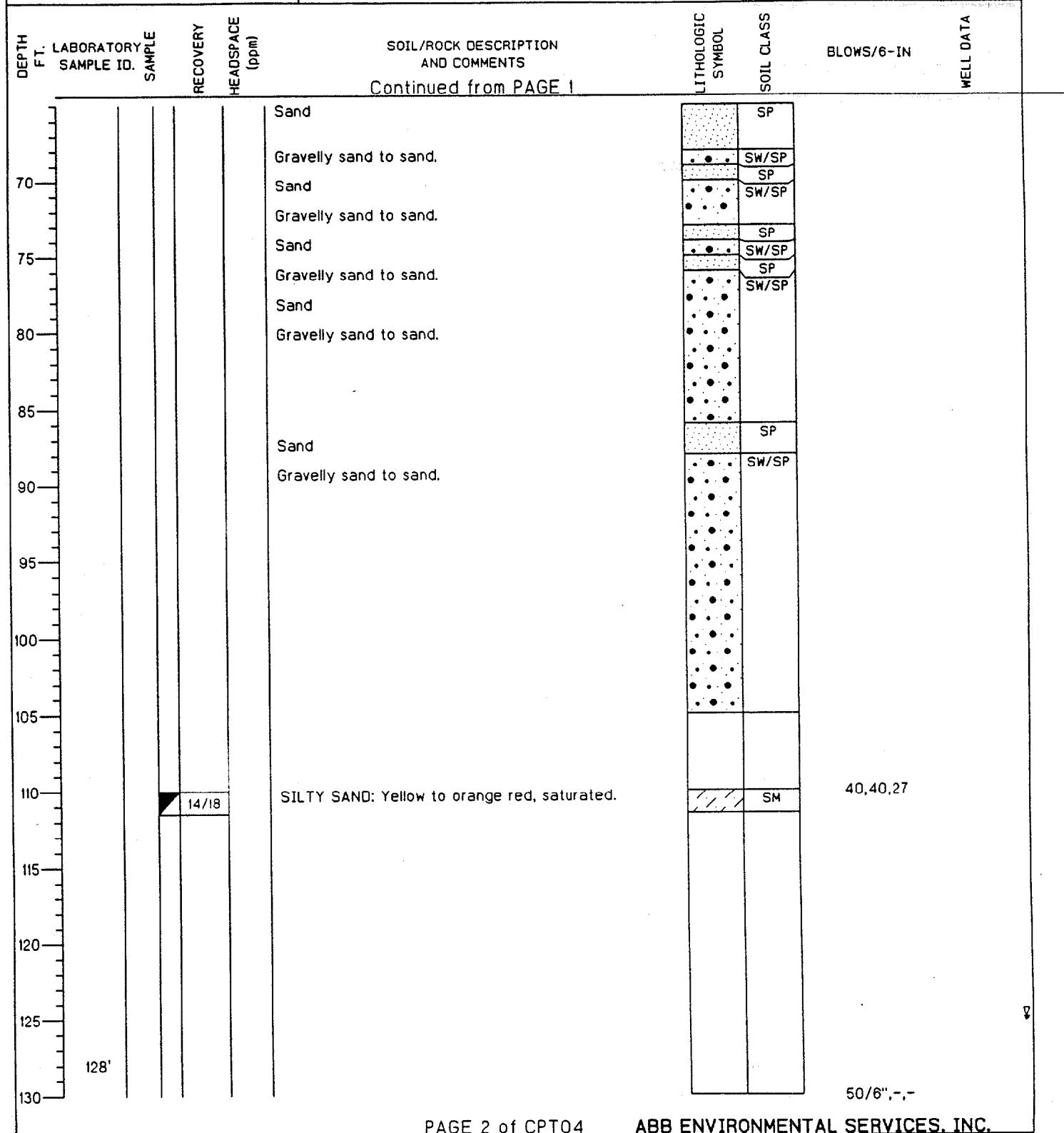


TITLE: NAVAL AIR STATION WHITING FIELD		LOG OF WELL: N/A	BORING NO. WHF-2A-CPT-03
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Williams Earth Science Inc. (WESI)		DATE STARTED: 10/13/92	COMPLTD: 10/26/92
METHOD: Cone Penetrometer	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 183FT.	DPTH TO 111 FT.
LOGGED BY: WESI	WELL DEVELOPMENT DATE: N/A		SITE: WHITING FIELD



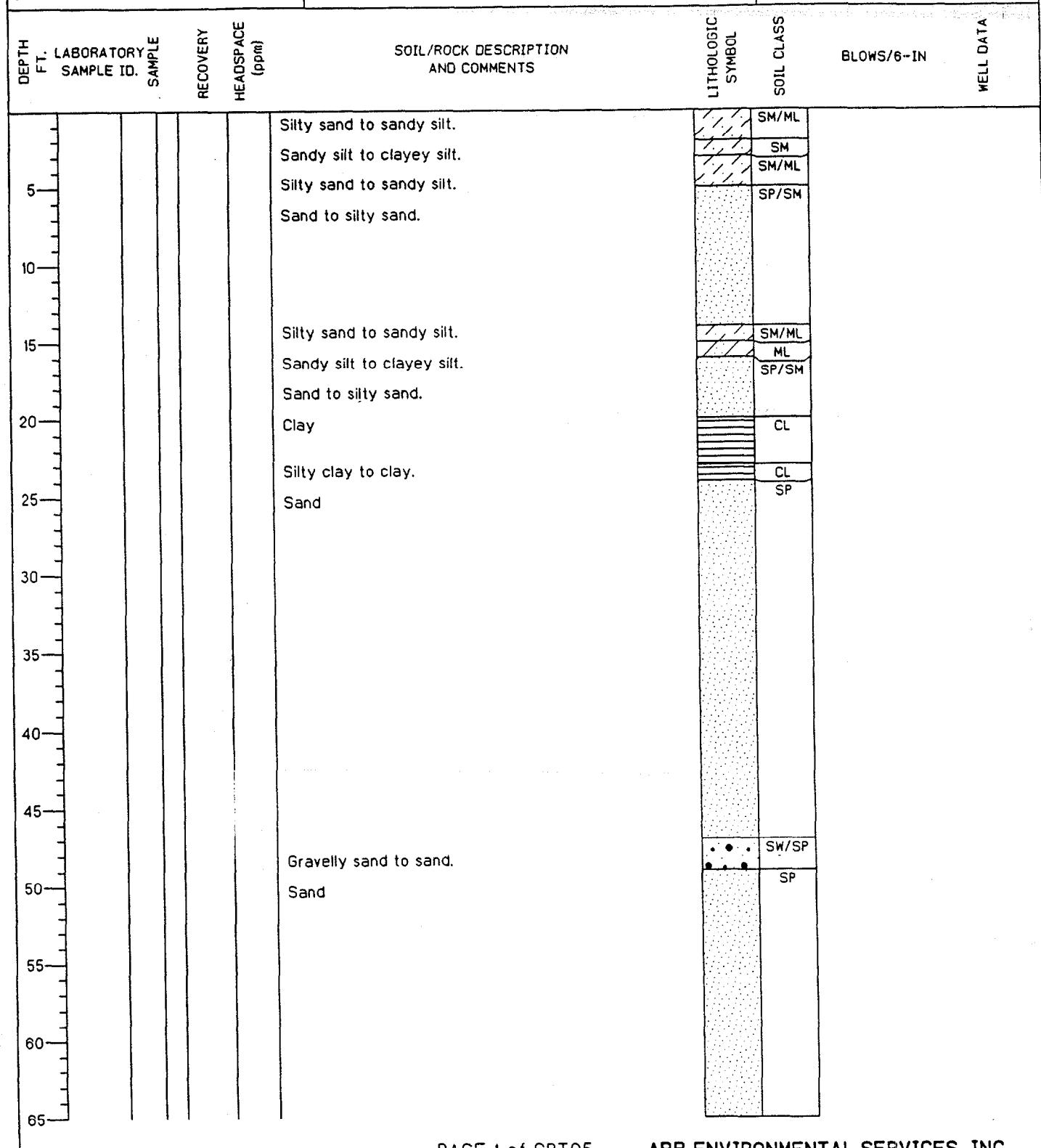
TITLE: NAVAL AIR STATION WHITING FIELD				LOG of WELL: N/A		BORING NO. WHF-2A-CPT-04			
CLIENT: SOUTHNAVFACENGCOM				PROJECT NO: RI PHASE IIA					
CONTRACTOR: Williams Earth Science Inc. (WESI)		DATE STARTED: 10/14/92		COMPLTD: 10/28/92					
METHOD: Cone Penetrometer		CASE SIZE: N/A		SCREEN INT.: N/A					
TOC ELEV.: N/A FT.		MONITOR INST.: OVA		TOT DPTH: 180FT.		DPHT TO 125 FT.			
LOGGED BY: WESI		WELL DEVELOPMENT DATE: N/A			SITE: WHITING FIELD				
DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5					Sand to silty sand. Sand Sand to silty sand. Undefined Silty sand to sandy silt. Sand		SP/SM SP SP/SM		
10					Sand to silty sand.		SM/ML		
15					Sand		SP		
20					Sand to silty sand.		SP/SM		
25					Sand		SP		
30					Sand to silty sand.		SP		
35					Sand		SP		
40					Sand to silty sand.		SP/SM		
45					Sand		SP		
50					Sand to silty sand.		SP/SM		
55					Sand		SP		
60					Sand to silty sand.		SP/SM		
65					Sand		SP		

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-2A-CPT-04
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE IIA
CONTRACTOR: Williams Earth Science Inc. (WESI)		DATE STARTED: 10/14/92	COMPLTD: 10/28/92
METHOD: Cone Penetrometer	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 180FT.	DPTH TO 125 FT.
LOGGED BY: WESI	WELL DEVELOPMENT DATE: N/A		SITE: WHITING FIELD

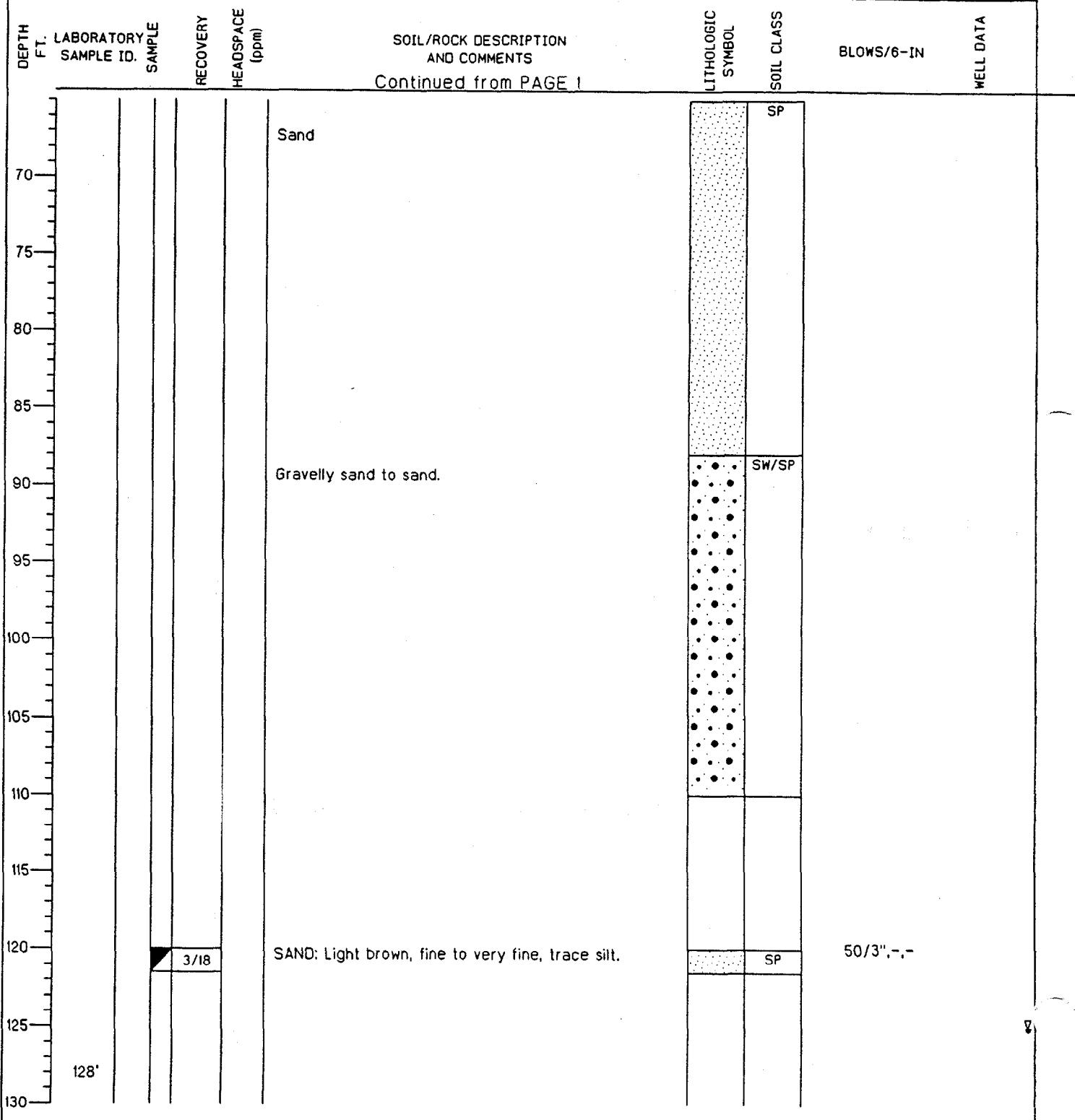


TITLE: NAVAL AIR STATION WHITING FIELD		LOG OF WELL: N/A	BORING NO. WHF-2A-CPT-04
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Williams Earth Science Inc. (WESI)		DATE STARTED: 10/14/92	COMPLTD: 10/28/92
METHOD: Cone Penetrometer	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 180FT.	DPTH TO 125 FT.
LOGGED BY: WESI	WELL DEVELOPMENT DATE: N/A		SITE: WHITING FIELD

TITLE: NAVAL AIR STATION WHITING FIELD		LOG OF WELL: N/A	BORING NO. WHF-2A-CPT-05
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE IIA
CONTRACTOR: Williams Earth Science Inc. (WESI)		DATE STARTED: 10/14/92	COMPLTD: 10/30/92
METHOD: Cone Penetrometer	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 195FT.	DEPTH TO 125 FT.
LOGGED BY: WESI	WELL DEVELOPMENT DATE: N/A		SITE: WHITING FIELD



TITLE: NAVAL AIR STATION WHITING FIELD	LOG OF WELL: N/A	BORING NO. WHF-2A-CPT-05
CLIENT: SOUTHNAVFACENGCOM	PROJECT NO: RI PHASE IIA	
CONTRACTOR: Williams Earth Science Inc. (WESI)	DATE STARTED: 10/14/92	COMPLTD: 10/30/92
METHOD: Cone Penotrometer	CASE SIZE: N/A	SCREEN INT.: N/A
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 195FT.
LOGGED BY: WESI	WELL DEVELOPMENT DATE: N/A	SITE: WHITING FIELD

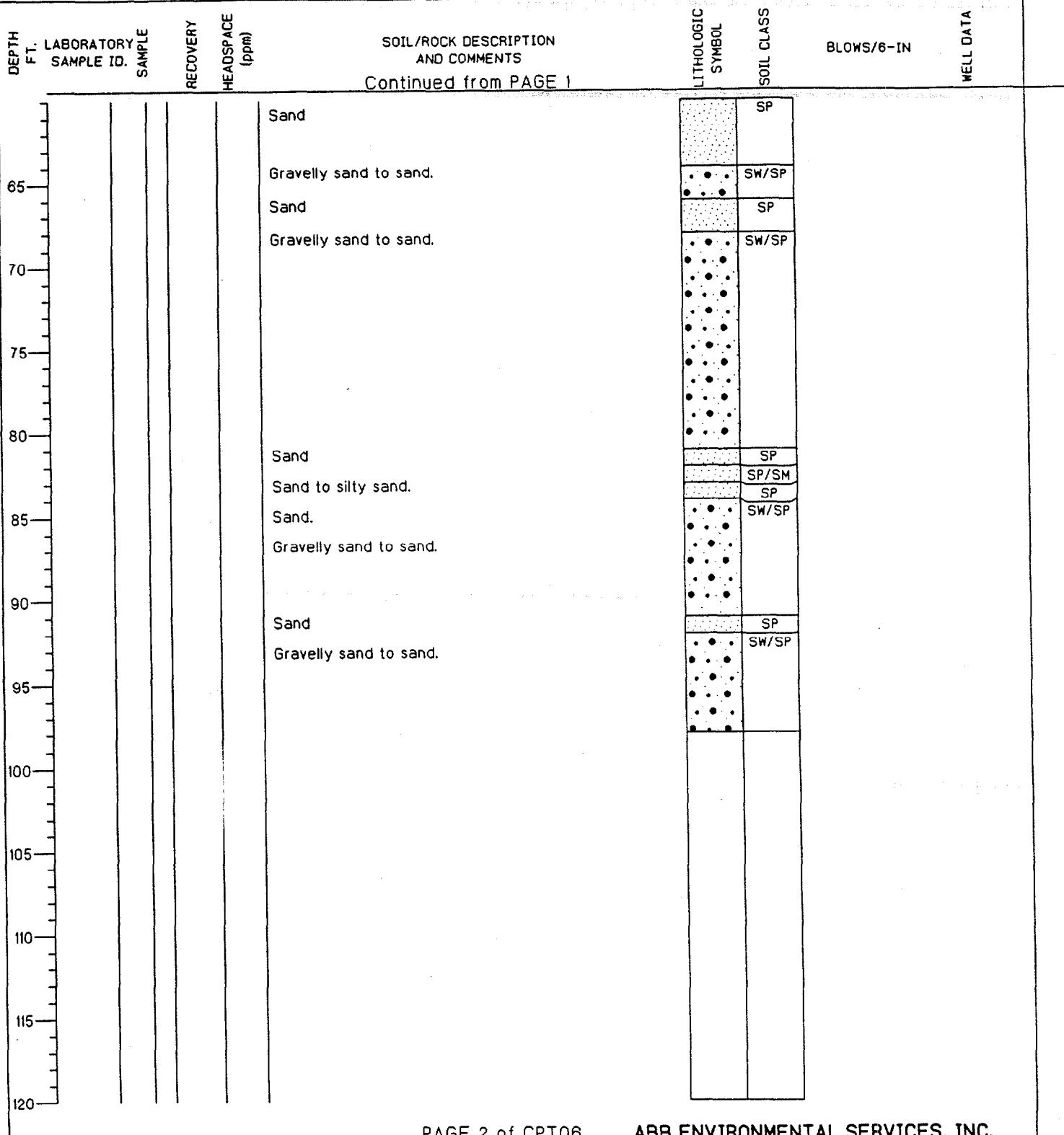


TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-2A-CPT-05
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE IIA
CONTRACTOR: Williams Earth Science Inc. (WESI)		DATE STARTED: 10/14/92	COMPLTD: 10/30/92
METHOD: Cone Penotrometer	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 195FT.	DPTH TO ↓ 125 FT.
LOGGED BY: WESI	WELL DEVELOPMENT DATE: N/A		SITE: WHITING FIELD

DEPTH FT. SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
Continued from PAGE 2							
135							
140							
145							
150							
155							
160							
165							
170							
175							
180							
185'							
190							
195							

TITLE: NAVAL AIR STATION WHITING FIELD			LOG of WELL: N/A		BORING NO. WHF-2A-CPT-06	
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE IIA			
CONTRACTOR: Williams Earth Science Inc. (WESI)			DATE STARTED: 10/15/92		COMPLTD: 10/31/92	
METHOD: Cone Penetrometer		CASE SIZE: N/A	SCREEN INT.: N/A		PROTECTION LEVEL: D	
TOC ELEV.: N/A FT.		MONITOR INST.: OVA	TOT DPTH: 175FT.		DPTH TO 130 FT.	
LOGGED BY: WESI		WELL DEVELOPMENT DATE: N/A			SITE: WHITING FIELD	
DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS
5			Silty sand to sandy silt.		/\ /	SM/ML
10			Sand to silty sand.		/\ /	SP/SM
15			Undefined		/\ /	ML
20			Sandy silt to clayey silt.		/\ /	SM/ML
25			Silty sand to sandy silt.		/\ /	SP/SM
30			Sand to silty sand.		/\ /	SP
35			Sand		/\ /	CL
40			Clay		• • •	SW/SP
45			Gravelly sand to sand.		• • •	SP
50			Sand		• • •	SW/SP
55			Gravelly sand to sand.		/\ /	ML
60			Sand		/\ /	CL
					/\ /	ML/CL
					/\ /	CL
					/\ /	SM/ML
					/\ /	ML
					/\ /	ML/CL
					/\ /	SP
					• • •	SW/SP
					• • •	SP
					• • •	SW/SP
					• • •	SP

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-2A-CPT-06
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Williams Earth Science Inc. (WESI)		DATE STARTED: 10/15/92	COMPLTD: 10/31/92
METHOD: Cone Penetrometer	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 175FT.	DEPTH TO ↓ 130 FT.
LOGGED BY: WESI	WELL DEVELOPMENT DATE: N/A		SITE: WHITING FIELD



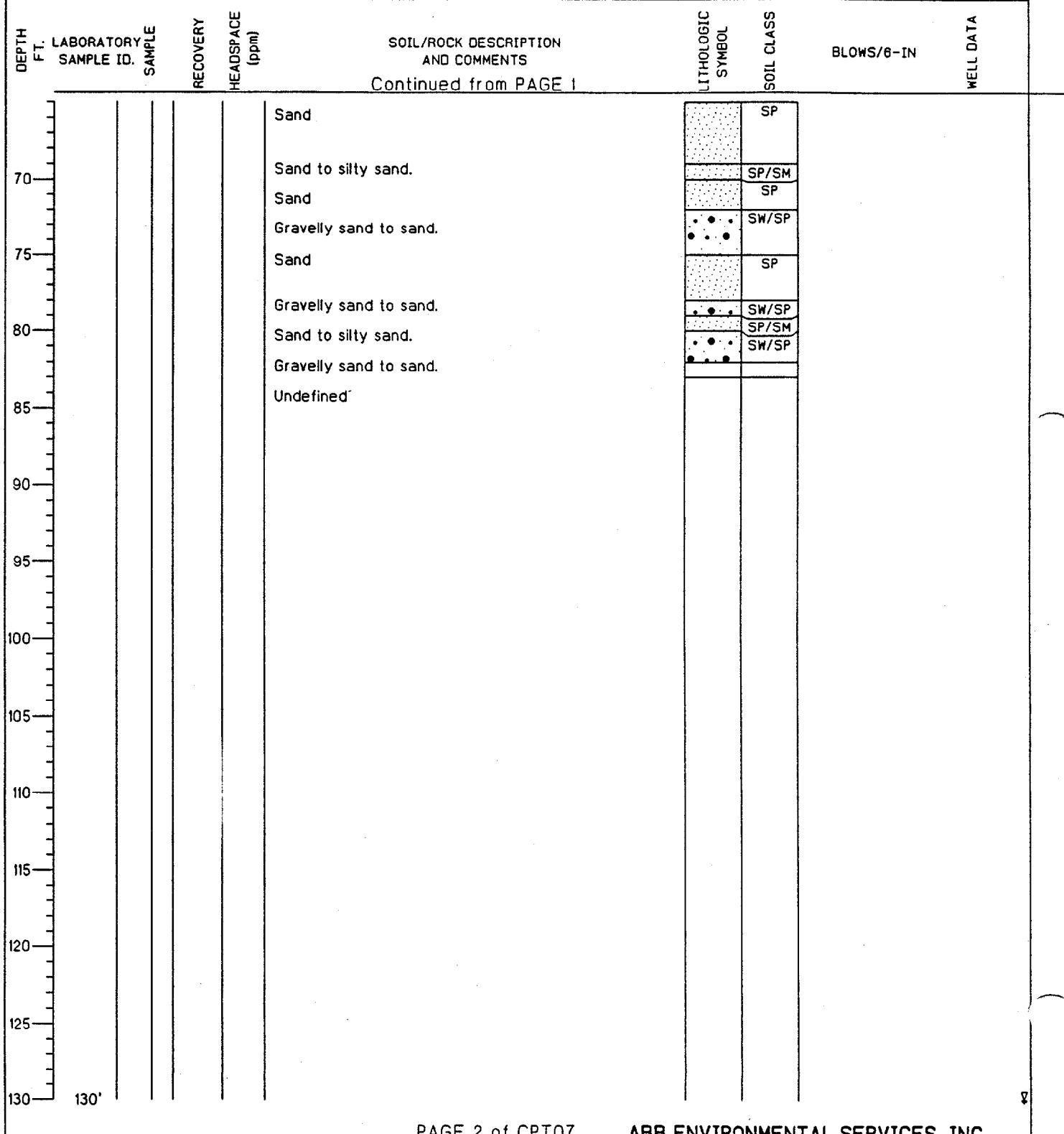
TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-2A-CPT-06
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Williams Earth Science Inc. (WESI)		DATE STARTED: 10/15/92	COMPLTD: 10/31/92
METHOD: Cone Penetrometer	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: 0
TOC ELEV: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 175FT.	DPTH TO ↓ 130 FT.
LOGGED BY: WESI	WELL DEVELOPMENT DATE: N/A	SITE: WHITING FIELD	

DEPTH FT. LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
			Continued from PAGE 2					
125			CLAY: Grey with red-orange mottling, dry, trace very fine sand.		CL		16,25,33-	
130			SILTY SAND: Grey, very fine to fine, wet to saturated.		SM		42,50/5",-	↓
133'								
135								
140								
145								
150								
155								
160								
165								
170								
175	175'							
180								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-2A-CPT-07
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Williams Earth Science Inc. (WESI)		DATE STARTED: 10/16/92	COMPLTD: 11/01/92
METHOD: Cone Penetrometer	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 185FT.	DPTH TO ↓ 130 FT.
LOGGED BY: WESI	WELL DEVELOPMENT DATE: N/A		SITE: WHITING FIELD

DEPTH FT	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5				Sand to silty sand. Sand	SP/SM SP	SP/SM		
10				Sand to silty sand. Silty sand to sandy silt. Sand	SM/ML SP	CL		
15				Sand to silty sand. Silty clay to clay. Clay	SP/SM ML/CL CL			
20				Very stiff, fine grained sand. Undefined. Clayey silt to silty clay. Clay	ML/CL SP/SM	SP		
25				Undefined Clayey silt to silty clay. Sand to silty sand.	SP			
30				Sand Gravelly sand to sand.	SW/SP SP			
35				Sand Gravelly sand to sand.	SW/SP SP/SM	ML		
40				Sand to silty sand. Sandy silt to clayey silt.	SP SW/SP	SP		
45				Sand Gravelly sand to sand.	SP SW/SP	SP		
50				Sand Gravelly sand to sand.	SP SW/SP	SP		
55				Silty sand to sandy silt. Sandy silt to clayey silt.	SP ML	ML		
60				Clayey silt to silty clay. Sand to silty sand.	ML/CL SP/SM	SP		
65				Sand				

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-2A-CPT-07
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE IIA
CONTRACTOR: Williams Earth Science Inc. (WESI)		DATE STARTED: 10/16/92	COMPLTD: 11/01/92
METHOD: Cone Penetrometer	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 185FT.	DEPTH TO 130 FT.
LOGGED BY: WESI	WELL DEVELOPMENT DATE: N/A		SITE: WHITING FIELD



TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. WHF-2A-CPT-07
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE IIA
CONTRACTOR: Williams Earth Science Inc. (WESI)		DATE STARTED: 10/16/92	COMPLTD: 11/01/92
METHOD: Cone Penetrometer	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 185FT.	DPTH TO 130 FT.
LOGGED BY: WESI	WELL DEVELOPMENT DATE: N/A		SITE: WHITING FIELD

DEPTH FT. SAMPLE ID.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS Continued from PAGE 2	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
135								
140								
145								
150								
155								
160								
165								
170								
175								
180								
185'								
190								
195								

APPENDIX B

DATA QUALITY OBJECTIVES (DQOS) ASSESSMENT

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APPENDIX B

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Remedial Investigation and Feasibility Study, Phase IIA
Technical Memorandum No. 5, Groundwater Assessment
NAS Whiting Field, Milton, Florida

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Table B-1
Sample Delivery Group Versus Sample Identification

Remedial Investigation and Feasibility Study, Phase IIA
Technical Memorandum No. 5, Groundwater Assessment
NAS Whiting Field, Milton, Florida

Sample Delivery Group		Sample Designation	
90173 01	WHF	TNK	1ACD
90173 02	WHF	TNK	2F
90174 01	WHF	TB	1
90174 02	WHF	FB	1
90174 03	WHF	RB	1
90174 04	WHF	BKG	3
90174 05	WHF	BKG	2
90175 01	WHF	BKG	1
90175 02	WHF	1	3
90175 03	WHF	TB	2
90177 01	WHF	1	1
90177 02	WHF	1	1B
90177 03	WHF	RB	2
90177 04	WHF	TB	3
90178 01	WHF	1	2
90178 02	WHF	2	1
90178 03	WHF	TB	4
90178 04	WHF	2	1A
90178 05	WHF	17	1
90179 01	WHF	17	2B
	WHF	17	2B
	WHF	17	2B
90179 02	WHF	17	MSD
	WHF	17	2BA
90180 01	WHF	RB	3
90180 02	WHF	17	1B
90180 03	WHF	TB	5
90181 01	WHF	17	3
90181 02	WHF	18	1
90181 03	WHF	18	2
90181 04	WHF	TB	6

See notes at end of table.

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Table B-1 (Continued)
Sample Delivery Group Versus Sample Identification

Remedial Investigation and Feasibility Study, Phase IIA
Technical Memorandum No. 5, Groundwater Assessment
NAS Whiting Field, Milton, Florida

Sample Delivery Group		Sample Designation	
90186 01	WHF	18	3
90186 02	WHF	RB	4
90186 03	WHF	TB	7
90188 01	WHF	9	1
90188 02	WHF	9	2
90188 03	WHF	TB	8
90189 01	WHF	9	3
90189 02	WHF	RB	5
90189 03	WHF	TB	9
90189 04	WHF	10	2
90189 05	WHF	10	1
90190 01	WHF	11	3
90190 02	WHF	11	3A MS/MSD
90191 01	WHF	11	2
90191 02	WHF	11	1B
90191 03	WHF	TB	10
90194 01	WHF	11	1
90194 02	WHF	TB	11
90194 03	WHF	RB	6
90196 01	WHF	RB	7
90196 02	WHF	12	1
90196 03	WHF	TB	12
90198 01	WHF	13	1B
90198 02	WHF	13	1
90198 03	WHF	13	2
90198 05	WHF	TB	13
90198 04	WHF	14	2
90199 01	WHF	RB	8
90199 02	WHF	14	1
90199 03	WHF	15	4

See notes at end of table.

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Table B-1 (Continued)
Sample Delivery Group Versus Sample Identification

Remedial Investigation and Feasibility Study, Phase IIA
Technical Memorandum No. 5, Groundwater Assessment
NAS Whiting Field, Milton, Florida

Sample Delivery Group		Sample Designation	
90199 06	WHF	TB	14
90199 04	WHF	15	3D
90199 05	WHF	15	3C
90203 01	WHF	15	3B
90203 02	WHF	TB	15
90210 01	WHF	15	2D
90210 02	WHF	15	2C
90210 03	WHF	15	2B
90210 04	WHF	15	2BA
90210 05	WHF	TB	17
90214 01	WHF	RB	10
90214 02	WHF	16	2
90214 03	WHF	15	6D
90214 04	WHF	15	6B
90214 05	WHF	TB	18
90220 01	WHF	16	3D
90220 02	WHF	16	3DA
	WHF	16	3D
	WHF	16	3D MS
90220 03	WHF	TB	20
90221 01	WHF	16	3CD
90221 02	WHF	16	3C
90221 03	WHF	RB	11
90221 04	WHF	TB	21
90225 01	WHF	16	3B
90225 02	WHF	16	4D
90225 03	WHF	RB	12
90225 04	WHF	TB	22
90226 01	WHF	16	4B
90226 02	WHF	16	4BA
90226 03	WHF	16	4CD

See notes at end of table.

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Table B-1 (Continued)
Sample Delivery Group Versus Sample Identification

Remedial Investigation and Feasibility Study, Phase IIA
Technical Memorandum No. 5, Groundwater Assessment
NAS Whiting Field, Milton, Florida

Sample Delivery Group		Sample Designation	
90226 04	WHF	16	1
90226 05	WHF	TB	23
90236 01	WHF	RB	13
90236 02	WHF	TB	24
90236 03	WHF	16	5
90236 04	WHF	6	1D
90240 01	WHF	6	1B
90240 02	WHF	6	3
90240 03	WHF	5	10D
90240 04	WHF	TB	25
90242 01	WHF	5	10B
90242 02	WHF	TB	26
90242 03	WHF	RB	14
90253 01	WHF	5	8B
90253 02	WHF	5	9B
90253 03	WHF	RB	15
90253 04	WHF	TB	27
90256 01	WHF	5	OW1
90256 02	WHF	TB	28
90257 01	WHF	5	9B
90257 02	WHF	5	9BA
90257 01MS	WHF	5	9B MS
90257 01MSD	WHF	5	9B MSD
90265 01	WHF	RB	16
90265 02	WHF	5	3
90265 03	WHF	7	1
90265 04	WHF	TB	29
90271 01	WHF	15	5
90271 02	WHF	15	1
90271 03	WHF	RB	9
90271 04	WHF	TB	16

See notes at end of table.

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Table B-1 (Continued)
Sample Delivery Group Versus Sample Identification

Remedial Investigation and Feasibility Study, Phase IIA
Technical Memorandum No. 5, Groundwater Assessment
NAS Whiting Field, Milton, Florida

Sample Delivery Group		Sample Designation	
90272 01	WHF	16	2C
90272 02	WHF	16	2B
90272 03	WHF	RB	17
90272 04	WHF	TB	19
90278 01	WHF	29	5
90278 02	WHF	29	1
90278 03	WHF	TB	30
90280 01	WHF	RB	18
90280 02	WHF	29	2
90280 03	WHF	29	3
90280 04	WHF	29	3A
90280 05	WHF	29	4
90280 06	WHF	TB	31
90285 01	WHF	8	1
90285 02	WHF	30	5
90285 03	WHF	30	2
90285 04	WHF	TB	32
90286 01	WHF	RB	19
90286 02	WHF	30	3
90286 03	WHF	TB	33
90289 01	WHF	RB	20
90289 01	WHF	30	4
90289 03	WHF	TB	34
90291 01	WHF	33	5
90291 02	WHF	33	2
90291 03	WHF	33	4
90291 04	WHF	TB	35
90298 01	WHF	FB	2
90298 02	WHF	TB	37
90299 01	WHF	3	2D
90299 01MS	WHF	3	2D MD
90299 01MSD	WHF	3	2D MSD

See notes at end of table.

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Table B-1 (Continued)
Sample Delivery Group Versus Sample Identification

Remedial Investigation and Feasibility Study, Phase IIA
Technical Memorandum No. 5, Groundwater Assessment
NAS Whiting Field, Milton, Florida

Sample Delivery Group		Sample Designation	
90320 01	WHF	RB	22
90320 02	WHF	33	3
90320 03	WHF	33	1
90320 04	WHF	33	1A
90320 05	WHF	TB	38
90325 01	WHF	3	1D
90325 02	WHF	3	3D
90325 03	WHF	3	7D
90325 04	WHF	TB	39
90330 01	WHF	RB	23
90330 02	WHF	3	1B
90330 03	WHF	TB	40
90331 01	WHF	3	1
90331 02	WHF	3	1A
90331 01MS	WHF	3	1 MS
90331 01MSD	WHF	3	1 MSD
90333 01	WHF	3	2
90333 02	WHF	3	2B
90333 03	WHF	TB	41
90334 01	WHF	RB	24
90334 02	WHF	3	3
90334 03	WHF	TB	42
90337 01	WHF	RB	25
90337 02	WHF	3	3B
90337 03	WHF	3	7C
90337 04	WHF	TB	43
90343 01	WHF	3	7B
90343 02	WHF	4	1
90343 03	WHF	32	2
90343 04	WHF	TB	44
90343 05	WHF	32	3

See notes at end of table.

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Table B-1 (Continued)
Sample Delivery Group Versus Sample Identification

Remedial Investigation and Feasibility Study, Phase II A
Technical Memorandum No. 5, Groundwater Assessment
NAS Whiting Field, Milton, Florida

Sample Delivery Group		Sample Designation	
90353 01	WHF	RB	26
90353 02	WHF	32	5
90353 03	WHF	32	1
90353 04	WHF	32	1A
90353 05	WHF	3	
90353 06	WHF	32	4
90353 07	WHF	TB	45
90359 01	WHF	5	8D
90359 02	WHF	TB	46

Notes: WHF = Whiting Field.
TNK = tank.
FB = field blank.
TB = trip blank.
BKG = background.
RB = rinsate blank.
GW = groundwater sample.
WW = wastewater sample.
RW = raw water sample, production well.

Table B-2
Summary of Relative Percent Difference (RPD) for Original and Duplicate Samples

**Remedial Investigation and Feasibility Study, Phase II A
Technical Memorandum No. 5, Groundwater Assessment
NAS Whiting Field, Milton, Florida**

Locator	WHF32-1		WHF32-1A			WHF33-1		WHF33-1A			WHF29-3		WHF29-3A						
Laboratory Sample No.	90353003		90353004			RPD	90320003		90320004			RPD	90280003		90280004		RPD		
Collect Date	20-JAN-94		20-JAN-94				10-JAN-94		10-JAN-94				08-DEC-93		08-DEC-93				
Parameter	Industrial Area - Organic Compounds																		
Methylene chloride	83	U	10	U		10	UJ	10	UJ		10	UJ	10	UJ					
Acetone	83	UJ	10	UJ		10	U	10	U		33	J	24	J	31.58				
1,1-Dichloroethene	83	U	10	U		2	J	2	J	0	10	U	10	U					
1,2-Dichloroethene (total)	110		110		0	2	J	2	J	0	10	U	10	U					
1,2-Dichloroethane	83	U	10	U		2	J	2	J	0	10	U	10	U					
Trichloroethene	95		96	1.047		120		120		0	10	U	10	U					
Benzene	760		670	12.59		10	U	10	U		10	U	10	U					
4-Methyl-2-pentanone	83	U	10	U		10	U	10	U		64		65		1.55				
Toluene	1,600		1,400	13.33		10	U	10	U		10	U	10	U					
Ethylbenzene	970		820	16.76		10	U	10	U		10	U	10	U					
Xylenes (total)	1,700		1,500	12.5		10	U	10	U		10	U	10	U					
Phenol	14		10	U	33.33	10	U	10	U		100	R	250	UJ					
2-Methylphenol	13		13	0		10	U	10	U		100	R	250	UJ					
4-Methylphenol	13		14	7.407		10	U	10	U		100	R	250	UJ					
2,4-Dimethylphenol	8	J	9	J	11.76	10	U	10	U		100	R	250	UJ					
Naphthalene	10		8	J	22.22	10	U	10	U		100	R	250	UJ					
2-Methylnaphthalene	4		4	J	0	10	U	10	U		100	R	250	UJ					
Phenanthrene	6		1	J	142.9	10	U	10	U		100	R	250	UJ					
Di-n-butylphthalate	10	UJ	10	UJ		10	UJ	10	UJ		100	R	250	UJ					
bis(2-Ethylhexyl)-phthalate	10	U	10	U		10	U	10	U		100	R	250	UJ					

Table B-2 (Continued)
Summary of Relative Percent Difference (RPD) for Original and Duplicate Samples

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Locator	WHF3-1		WHF3-1A		WHF5-9B		WHF5-9BA			
Laboratory Sample No.	90331001		90331002		RPD	90257001		90257002		
Collect Date	12-JAN-94		12-JAN-94			01-DEC-93		01-DEC-93		
Parameter	Industrial Area - Organic Compounds									
Methylene chloride	10	UJ	10	UJ		10	U	10	U	
Acetone	10	U	10	U		86		87	1.156	
1,1-Dichloroethene	10	U	10	U		10	U	10	U	
1,2-Dichloroethene (total)	4	J	3	J	28.57	10	U	10	U	
1,2-Dichloroethane	10	U	10	U		10	U	10	U	
Trichloroethene	53		52		1.905	10	U	10	U	
Benzene	3	J	2	J	40	10	U	10	U	
4-Methyl-2-pentanone	10	U	10	U		10	U	10	U	
Toluene	41		39		5	10	U	10	U	
Ethylbenzene	3	J	3	J	0	10	U	10	U	
Xylenes (total)	6	J	6	J	0	10	U	10	U	
Phenol	10	UJ	10	UJ		10	U	10	U	
2-Methylphenol	10	U	10	U		10	U	10	U	
4-Methylphenol	10	U	10	U		10	U	10	U	
2,4-Dimethylphenol	10	U	10	U		10	U	10	U	
Naphthalene	10	U	10	U		10	U	10	U	
2-Methylnaphthalene	10	U	10	U		10	U	10	U	
Phenanthrene	10	U	10	U		10	U	10	U	
Di-n-butylphthalate	10	UJ	10	UJ		10	U	10	U	
bis(2-Ethylhexyl) phthalate	490	J	10	UJ		36		27	28.57	
See notes at end of table.										

Table B-2 (Continued)
Summary of Relative Percent Difference (RPD) for Original and Duplicate Samples

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Locator	WHF32-1	WHF32-1A	WHF33-1	WHF33-1A	WHF29-3	WHF29-3A									
Laboratory Sample No.	90353003	90353004	RPD	90320003	90320004	90280003	90280004								
Collect Date	20-JAN-94	20-JAN-94		10-JAN-94	10-JAN-94	08-DEC-93	08-DEC-93	RPD							
Parameter	Industrial Area - Inorganic Compounds														
Aluminum	53,900	49,800	7.907	10700	8,490	23.03	5,590	R	6,060	8.069					
Antimony	21.8	U	21.8	U	20.7	U	20.7	U	60	U	60	U			
Arsenic	4.1	J	5	J	19.78	1.6	U	1.6	U	5.6	U	3.9	J	35.79	
Barium	143	J	138	J	3.559	87.6	J	89.5	J	2.146	31.2	J	32.7	J	4.695
Beryllium	1.2	J	1	J	18.18	0.55	J	0.55	U	5	U	5	U		
Cadmium	4.6	J	3.6	J	24.39	6.4	6.7	4.58	8.1	4.5	J	57.14			
Calcium	1,320	J	1,270	J	3.861	2,560	J	2,870	J	11.42	1,630	J	1,770	J	8.235
Chromium	212		201		5.327	22.7		20.5		10.19	47.4		41.2		14
Cobalt	18.6	J	17.9	J	3.836	4.1	U	4.8	U	50	U	50	U		
Copper	195		181		7.447	9.9	J	11.2	J	12.32	14.4	J	17.4	J	18.87
Iron	110,000		108,000		1.835	17,500		18,100		3.371	11,200		12,000		6.897
Lead	41.3		51.7		22.37	4.8		5.6		15.38	32.4		4.4		152.2
Magnesium	1,650		1,630		1.22	1,970	J	2,160	J	9.201	1,060	J	1,090	J	2.791
Manganese	3,220		3,020		6.41	27.1		29.5		8.481	19.8		19.8		0
Mercury	0.47		0.48		2.105	0.15	U	0.177	J	16.51	0.14	J	0.2	U	
Nickel	48.3		49.4		2.252	16.1	J	12.7	J	23.61	33.3	J	27.6	J	18.72
Potassium	2,160	J	1,860	J	14.93	1,250	J	1,050	J	17.39	5,000	U	5,000	U	
Selenium	2	U	2	U		2	U	2	U		5	U	5	U	
Silver	2	U	2	U		2.7	U	2.7	U		10	U	10	U	
Sodium	5,410		5,050		6.883	2,960	J	3,390	J	13.54	3,500	J	3,530	J	0.853
Thallium	0.88	UJ	0.88	UJ		0.88	U	0.88	U		10	U	10	U	
Vanadium	515		510		0.976	64.9		72.1	J	10.51	31.3	J	35.4	J	12.29
Zinc	1,270		1,200		5.668	31.2		38.1		19.91	45.2		44.8		0.889
Cyanide	1.7	U	1.7	U		1.8	J	1.9	J	5.405	10	U	10	U	

See notes at end of table.

Table B-2 (Continued)
Summary of Relative Percent Difference (RPD) for Original and Duplicate Samples

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Locator	WHF3-1	WHF3-1A	WHF5-9B	WHF5-9BA		
Laboratory Sample No.	90331001	90331002	RPD	90257001	90257002	
Collect Date	12-JAN-94	12-JAN-94		01-DEC-93	01-DEC-93	RPD
Industrial Area - Inorganic Compounds						
Aluminum	200 UJ	200 UJ	952	1,890	66.01	
Antimony	60 U	60 U	22.6 J	60 U		
Arsenic	10 U	10 U	10 UJ	10 J		
Barium	37.4 J	37.9 J	1.328	62.1 J	64.5 J	
Beryllium	5 U	5 U		5 U	5 U	
Cadmium	17.8	18.8	5.464	5 U	5 U	
Calcium	6,190	6,410	3.492	3,310 J	2,380 J	
Chromium	10 U	10 U		10 UJ	10 UJ	
Cobalt	50 U	50 U		50 UJ	50 U	
Copper	25 UJ	25 UJ		25 UJ	25 UJ	
Iron	368	364	1.093	3,260 J	5,740 J	
Lead	14.8	17.5	16.72	2.7 J	2.8 J	
Magnesium	722 J	715 J	0.974	1,530 J	1,610 J	
Manganese	33.5	33.3	0.599	8.1	38.9	
Mercury	0.2 U	0.2 U		0.2 U	0.2 U	
Nickel	40 U	40 U		40 U	40 U	
Potassium	3,900 J	4,660 J	17.76	5,000 UJ	5,000 UJ	
Selenium	5 U	5 U		5 U	5 U	
Silver	10 UJ	10 UJ		10 U	10 U	
Sodium	4,310 J	4,640 J	7.374	4,610 J	4,380 J	
Thallium	10 U	10 U		10 U	10 U	
Vanadium	50 U	50 U		50 U	17.5 J	
Zinc	20 UJ	20 UJ		455	246	
Cyanide	10 UJ	10 UJ		10 U	10 U	

See notes at end of table.

Table B-2 (Continued)
Summary of Relative Percent Difference (RPD) for Original and Duplicate Samples

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Locator	WHF2-1	WHF2-1A		WHF17-2B	WHF17-2BA		WHF11-3	WHF11-3A	WHF11-3ARE	RPD								
Lab. Sample No.	90178002	90178004		RPD	90179001	90179002		RPD	90190001	90190002	90190002RE							
Collect Date	19-OCT-93	19-OCT-93			20-OCT-93	20-OCT-93			28-OCT-93	28-OCT-93	28-OCT-93							
Parameter																		
Perimeter Area - Organic Compounds																		
Methylene chloride	10	U	10	U	10	U	10	U	10	U								
Phenol	10	U	10	U	10	U	10	UJ	10	U								
bis(2-Ethylhexyl)-phthalate	10	U	7	J	10	U	7	J	10	U								
Di-n-octylphthalate	10	U	10	U	10	U	4	J	10	U								
beta-BHC	0.05	UJ	0.05	UJ	0.017	J	0.05	J	98.5	0.05								
See notes at end of table.																		

Table B-2 (Continued)
Summary of Relative Percent Difference (RPD) for Original and Duplicate Samples

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Locator	WHF16-3D	WHF16-3DA		WHF16-4B	WHF16-4BA			
Lab. Sample No.	90220001	90220002		90226001	90226002			
Collect Date	11-NOV-93	11-NOV-93		16-NOV-93	16-NOV-93			
Parameter	Perimeter Area - Organic Compounds							
Methylene chloride	10	UJ	10	UJ	2	J	10	U
Phenol	10	U	10	U	10	U	10	U
bis(2-Ethylhexyl)phthalate	10	U	10	U	10	U	10	U
Di-n-octylphthalate	10	U	10	U	10	U	10	U
beta-BHC	0.05		0.05		0.0	0.05	0.05	0.05
See notes at end of table.								

Table B-2 (Continued)
Summary of Relative Percent Difference (RPD) for Original and Duplicate Samples

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Locator	Perimeter Area - Inorganic Analytes		RPD	RPD	RPD	RPD	RPD
	WHF2-1	WHF2-1A					
Laboratory Sample No.	90178002	90178004		90179001	90179002	90190001	90190002
Collect Date	19-OCT-93	19-OCT-93		20-OCT-93	20-OCT-93	28-OCT-93	28-OCT-93
Parameter							
Perimeter Area - Inorganic Analytes							
Aluminum	12,700	11,200	12.6	2,080	J 1,700	J 20.1	24,000
Antimony	20.7	U 20.7	U	20.7	U 20.7	U	21
Arsenic	1.6	U 1.6	U	1.6	UJ 1.6	UJ	2
Barium	60.9	J 57	J 6.6	34.4	J 35.4	J 2.9	153
Beryllium	1.4	J 1.3	J 7.4	0.2	UJ 0.2	UJ	1
Cadmium	3.2	U 3.2	U	3.2	U 3.2	UJ	3
Calcium	1,320	J 1,290	J 2.3	3,100	J 2,590	J 17.9	9,570
Chromium	163	144	12.4	13	11.8	9.7	54.3
Cobalt	4.1	U 4.1	U	4.1	U 4.3	J	6.1
Copper	39.2	34.1	13.9	16.5	UJ 12.5	UJ	34
Iron	74,200	66,500	10.9	2,300	J 2,000	J 14.0	37,800
Lead	5.8	4.8	18.9	2.7	J 2.1	J 25.0	21.9
Magnesium	1,390	J 1,380	J 0.7	752	J 691	J 8.5	3,570
Manganese	46	42.4	8.1	104	105	1.0	374
Mercury	0.15	U 0.15	U	0.15	U 0.15	U	0.15
Nickel	9	UJ 9	UJ	9	U 9	U	16.7
Potassium	954	J 996	J 4.3	915	J 974	J 6.2	3,060
Selenium	2	U 2	U	2	U 2	U	2
Silver	4.6	J 2.7	U	2.7	U 2.7	U	3
Sodium	1,280	J 1,310	J 2.3	3,870	J 3,450	J 11.5	12,800
Thallium	0.88	U 0.88	U	0.88	U 0.88	U	1
Vanadium	169	153	9.9	7.5	J 6.7	J 11.3	61.8
Zinc	21.8	20.2	7.6	78.4	56.6	32.3	80.8
Cyanide	1.7	U 1.7	U	1.7	U 1.9	J	2

See notes at end of table.

Table B-2 (Continued)
Summary of Relative Percent Difference (RPD) for Original and Duplicate Samples

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Locator	Perimeter Area - Inorganic Analytes										
	WHF16-3D		WHF16-3DA		RPD	WHF16-4B		WHF16-4BA			
Laboratory Sample No.	90220001		90220002			90226001		90226002		RPD	
Collect Date	11-NOV-93		11-NOV-93			16-NOV-93		16-NOV-93			
Parameter											
Aluminum	1,370		2,590	J	61.6	6,280		5,170	19.4		
Antimony	20.7	U	20.7	U		20.7	U	20.7	U		
Arsenic	1.9	J	2	J	5.1	3.1	J	1.6	U		
Barium	19.1	J	20.4	J	6.6	25.9	J	26.3	J		
Beryllium	0.32	J	0.45	J	33.8	0.2	U	0.2	U		
Cadmium	3.2	U	5.6			3.2	U	3.2	U		
Calcium	2,410	J	2,420	J	0.4	91,600		90,300	1.4		
Chromium	4.3	J	5.1	J	17.0	7	J	7	J		
Cobalt	4.1	U	4.1	U		4.1	U	4.1	U		
Copper	2.6	J	2.4	J	8.0	6.6	J	6.5	J		
Iron	923	J	1,230	J	28.5	4,640		3,370	31.7		
Lead	2.2	UJ	2.4	UJ		6.1		4.7	25.9		
Magnesium	903	J	955	J	5.6	7,840		7,720	1.5		
Manganese	93.4		94.1		0.7	81.1		67.2	18.7		
Mercury	0.15	U	0.15	U		0.15	U	0.15	U		
Nickel	9	U	9	U		9	U	9	U		
Potassium	1,890	J	1,770	J	6.6	3,360	J	3,540	J		
Selenium	2	U	2	U		2	U	2	U		
Silver	2.7	UJ	2.7	UJ		2.7	U	2.7	U		
Sodium	23,200		23,000		0.9	3,270	J	3,090	J		
Thallium	1	UJ	0.88	U		0.88	U	0.88	U		
Vanadium	4.4	J	5	J	12.8	14.2	J	11.5	J		
Zinc	14.7	J	17.8	J	19.1	92.5		68	30.5		
Cyanide	1.7	U	1.7	U		1.7	U	1.7	U		

Notes: All concentrations are reported in micrograms per liter ($\mu\text{g/l}$).

RPD = relative percent difference.

J = estimated value.

UJ = undetected, but number that is reported as the quantification limit is an estimated value.

Table B-3
Technical Memorandum No. 5, Groundwater
Summary of Relative Percent Difference (RPD) for Matrix Spike/Matrix Spike Duplicates
(Organic Compounds)

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Sample Delivery Group	Locator	Organic Compound	Criteria		% Recovery		RPD	Qualifiers
			% Recovery	RPD	MS	MSD		
90179	WHF17-2B	4-nitrophenol	10-80	50	91 ¹	92 ¹	1	No Qualifiers
90190	WHF11-3	4-chloro-3-methylphenol	23-97	42	99 ¹	95	4	No Qualifiers
		4-nitrophenol	10-80	50	98 ¹	92 ¹	6	
		2,4-dinitrotoluene	24-96	38	103 ¹	98 ¹	5	
		pentachlorophenol	9-103	50	120 ¹	115 ¹	4	
90220	WHF16-3D	4-nitrophenol	10-80	50	97 ¹	99 ¹	2	No Qualifiers
		4-chloro-3-methylphenol	23-97	42	97 ¹	104 ¹	7	
		2,4-dinitrotoluene	24-96	38	103 ¹	107 ¹	4	
		pentachlorophenol	9-103	50	114 ¹	123 ¹	8	
		gamma-BHC (lindane)	56-123	15	74	88	17 ¹	
90257	WHF5-9B	4-nitrophenol	10-80	50	95 ¹	94	1	No Qualifiers
		gamma-BHC	56-123	15	107	48 ¹	76 ¹	
		heptachlor	40-131	20	92	43	73 ¹	
		aldrin	40-120	22	83	40	70 ¹	
		dieldrin	52-126	18	101	46 ¹	75 ¹	
		endrin	56-121	21	111	51	74 ¹	
		4,4'-DDT	38-127	27	96	49	65 ¹	
902991	WHF3-2D	Compounds within Recovery Limits						

¹ Compounds marked with an * on the following table were reported to be outside Statement of Work (SOW)-specified control limits. These compounds were not detected in the samples and sample results have not been qualified based on the matrix spike/matrix spike duplicate (MS/MSD) results.

Table B-3 (Continued)
Technical Memorandum No. 5, Groundwater
Summary of Relative Percent Difference (RPD) for Matrix Spike/ Matrix Spike Duplicates
(Inorganic Analytes)

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Sample Delivery Group	Locator	Inorganic Analyte	Criteria	% Recovery	Qualifiers
			% Recovery		
90179 ¹	WHF17-2B	aluminum	75-125	292.2	J-S
		iron	75-125	141.6	J-S
90190	WHF11-3	antimony	75-125	46.5	UJ-S
		arsenic	75-125	13.3	R-S
		mercury	75-125	126.2	J-S ²
		selenium	75-125	48.0	UJ-S
90220	WHF16-3D	aluminum	75-125	137.5	No Qualifiers
		iron	75-125	91.9	
90257	WHF5-9B	aluminum	75-125	880 µg/l	JS
		iron	75-125	40.0	JS
902991	WHF3-2D	aluminum	75-125	224	J-S
		arsenic	75-125	67.0	UJ-S
		iron	75-125	276	J-S
		lead	75-125	63.6	J-S
		thallium	75-125	67.2	UJ-S

¹ The sample delivery group indicated have samples, analytes, recoveries, and qualifiers associated with spike recoveries outside of the contract specified control limits.

² Undetected values are not impacted by the high bias indicated by a high matrix spike recovery, thus no qualification by the data reviewer is required.

Notes: J = estimated value.

UJ = undetected, but number that is reported as the quantification limit is an estimated value.

S = quantification due to matrix spike recoveries outside control limits.

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Table B-4
Summary of Compounds Exceeding Instrument Calibration

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Sample Delivery Group	Organic Compound	Criteria		Qualifiers
		%RSD	%D	
90174	chloromethane		-34.5	J/UJ
	2,4-dinitrophenol		31.2	J/UJ
	4-nitrophenol		41.2	J/UJ
90190	chloromethane		25.2	J/UJ
	hexachlorobutadiene		37.2	J/UJ
90191	hexachlorobutadiene		37.2	J/UJ
	2,4-dinitrophenol		30/37.7	J/UJ
	2,6-dinitrotoluene		25.5	J/UJ
	4-nitroaniline		32	J/UJ
	4,6-dinitro-2-methylphenol		29.9	J/UJ
90194	chloromethane		25.2	J/UJ
	hexachlorobutadiene		37.2	J/UJ
	2,4-dinitrophenol		30/37.7	J/UJ
	2,6-dinitrotoluene		25.5	J/UJ
	4-nitroaniline		32	J/UJ
	4,6-dinitro-2-methylphenol		29.9	J/UJ
90196	acetone		25.7	J/UJ
	hexachlorobutadiene		39.1	J/UJ
	hexachlorocyclopentadiene		29.9	J/UJ
	2,4-dinitrophenol		39.3	J/UJ
	4-nitroaniline		29.6	J/UJ
	4,6-dinitro-2-methylphenol		27.8	J/UJ
	hexachlorobenzene		25.8	J/UJ
90198	2,4-dinitrophenol		39.3	J/UJ
	4-nitroaniline		29.6	J/UJ
	4,4-dinitro-2-methylphenol		27.8	J/UJ
	hexachlorobenzene		25.5	J/UJ
	acetone		28.7	J/UJ
90199	hexachlorobutadiene		39.1	J/UJ
	hexachlorocyclopentadiene		29.9	J/UJ
	2,4-dinitrophenol		37.3	J/UJ
	4-nitroaniline		29.6	J/UJ
	4,6-dinitro-2-methylphenol		27.8	J/UJ
	hexachlorobenzene		25.8	J/UJ
	chloromethane		53.9	J/UJ
90210	methylene chloride	27.4	25.3	J/UJ
	acetone	89.8	44.8	J/UJ
	2-hexanone	141.5	73.6	J/UJ
	2,6-dinitrotoluene		25.2	J/UJ
	4,6-dinitro-2-methylphenol		29.9	J/UJ
	2,4-dinitrophenol		38.8	J/UJ
	4-nitroaniline		34.5	J/UJ

See notes at end of table.

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Table B-4 (Continued)
Summary of Compounds Exceeding Instrument Calibration

Remedial Investigation and Feasibility Study, Phase II A
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Sample Delivery Group	Organic Compound	Criteria		Qualifiers
		%RSD	%D	
90214	chloromethane		93.9	J/UJ
	chloroethane		32.6	J/UJ
	methylene chloride		33.8	J/UJ
	acetone		50.6	J/UJ
	2-butadiene		36.8	J/UJ
	2-hexanone		75.3	J/UJ
	2,6-dinitrotoluene		25.2	J/UJ
	4,6-dinitro-2-methylphenol		29.7	J/UJ
	2,4-dinitrophenol		38.8	J/UJ
	4-nitroaniline		34.5	J/UJ
90220	bromomethane		38.7	J/UJ
	chloroethane		55.1	J/UJ
	methylene chloride		26.0	J/UJ
	acetone		46.2	J/UJ
	2-butanone		33.6	J/UJ
	2-hexanone		75.2	J/UJ
	2,2-oxybis-(1-chloropropane)		25.0	J/UJ
	2,4-dinitrophenol		33.3	J/UJ
	4,6-dinitro-2-methylphenol		27.1	J/UJ
	4-nitroaniline		30.3	J/UJ
90221	bromomethane		38.7	J/UJ
	chloroethane		55.1	J/UJ
	methylene chloride		26.0	J/UJ
	acetone		46.2	J/UJ
	2-butanone		33.6	J/UJ
	2-hexanone		75.2	J/UJ
	2,4-dinitrophenol		32.8	J/UJ
	4-nitrophenol		31.0	J/UJ
	4-nitroaniline		45.1	J/UJ
	pentachlorophenol		27.8	J/UJ
90225	di-n-octyl phthalate		26.4	J/UJ
	2,4,6-tribromophenol		34.6	J/UJ
	2,4-dinitrophenol		32.8	J/UJ
	4-nitrophenol		31.0	J/UJ
	4-nitroaniline		45.1	J/UJ
90226	pentachlorophenol		27.8	J/UJ
	di-n-octyl phthalate		26.4	J/UJ
	acetone	30.8		J/UJ
	2,4-dinitrophenol		28.4	J/UJ
	4-nitrophenol		32.4	J/UJ
90253	4-nitroaniline		39.8	J/UJ
	2,4,6-tribromophenol		28.0	J/UJ
	chloromethane	34.8		J/UJ
	acetone	29.4		J/UJ
	2,4-dinitrophenol		33.3	J/UJ
	4-nitrophenol		43.8	J/UJ
	4-nitroaniline		40.5	J/UJ
	pentachlorophenol		31.6	J/UJ

See notes at end of table.

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Table B-4 (Continued)
Summary of Compounds Exceeding Instrument Calibration

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Sample Delivery Group	Organic Compound	Criteria		Qualifiers
		%RSD	%D	
90256	chloromethane	34.8/37.6		J/UJ
	chloroethane		28.0	J/UJ
	2,4-dinitrophenol		33.3	J/UJ
	4-nitrophenol		43.8	J/UJ
	4-nitroaniline		40.5	J/UJ
	pentachlorophenol		31.6	J/UJ
90257	chloromethane	34.8	37.6	J/UJ
	chloroethane		28.0	J/UJ
	4-nitrophenol		49.5	J/UJ
	4-nitroaniline		68.7	J/R
	pentachlorophenol		26.6	J/UJ
	benzo(g,h,i) perylene		36.8	J/UJ
90265	chloromethane	34.8	25.3	J/UJ
	2,4-dinitrophenol		31.7/30.0	J/UJ
	4-nitrophenol		48.1/49.5	J/UJ
	4-nitroaniline		33.8/68.7	J/UJ
	pentachlorophenol		27.2/26.6	J/UJ
	benzo (g,h,i) perylene		36.8	J/UJ
90271	chloromethane	34.8		J/UJ
	2,4-dinitrophenol		31.7	J/UJ
	4-nitrophenol		48.1	J/UJ
	4-nitroaniline		33.8	J/UJ
	pentachlorophenol		27.2	J/UJ
	chloromethane	34.8		J/UJ
90272	2,4-dinitrophenol		31.7	J/UJ
	4-nitrophenol		48.1	J/UJ
	4-nitroaniline		33.8	J/UJ
	pentachlorophenol		27.2	J/UJ
	chloromethane	34.8		J/UJ
	2,4-dinitrophenol		31.7	J/UJ
90278	4-nitrophenol		48.1	J/UJ
	4-nitroaniline		33.8	J/UJ
	pentachlorophenol		27.2	J/UJ
	chloromethane	34.8		J/UJ
	acetone		-31.6	J/UJ
	bromoform		28.4	J/UJ
	hexachlorocyclopentadiene		27.5	J/UJ
	2-nitroaniline		26.4	J/UJ
	2,4-dinitrophenol		48.6	J/UJ
	4-nitrophenol		48.6	J/UJ
	4-nitroaniline		48.9	J/UJ
	4,6-dinitro-2-methylphenol		34.0	J/UJ
90280	pentachlorophenol		31.6	J/UJ
	3,3'-dichlorobenzidine		43.3	J/UJ
	chloromethane	34.8		J/UJ
	acetone	29.4	-31.7	J/UJ
	bromoform		28.4	J/UJ
	hexachlorocyclopentadiene		27.5	J/UJ
	2-nitroaniline		26.4/48.2	J/UJ
	2,4-dinitrophenol		48.6	J/UJ
	4-nitrophenol		48.6	J/UJ
	4-nitroaniline		48.9	J/UJ
	4,6-dinitro-2-methylphenol		34.0	J/UJ
	pentachlorophenol		31.6	J/UJ
	3,3'-dichlorobenzidine		43.3	J/UJ

See notes at end of table.

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Table B-4 (Continued)
Summary of Compounds Exceeding Instrument Calibration

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Sample Delivery Group	Organic Compound	Criteria		Qualifiers
		%RSD	%D	
90285	chloromethane	34.8		J/UJ
	acetone	29.4	31.7	J/UJ
	bromoform		28.4	J/UJ
	¹ chloromethane	34.8	35.8	J/UJ
	¹ acetone	29.4	58.4	J/UJ
	¹ bromoform		34.8	J/UJ
	hexachlorocyclopentadiene		27.5	J/UJ
	2-nitroaniline		26.4	J/UJ
	2,4-dinitrophenol		48.6	J/UJ
	4-nitrophenol		48.6	J/UJ
	4-nitroaniline		48.9	J/UJ
	4,6-dinitro-2-methylphenol		34.0	J/UJ
	3,3'-dichlorobenzidine		43.3	J/UJ
90286	chloromethane	34.8		J/UJ
	acetone	29.4	31.7	J/UJ
	bromoform		28.4	J/UJ
	¹ chloromethane	34.8		J/UJ
	¹ bromoform		26.0	J/UJ
	hexachlorocyclopentadiene		27.5	UJ
	2-nitroaniline		26.4	UJ
	2,4-dinitrophenol		48.6	UJ
	4-nitrophenol		48.6	UJ
	4-nitroaniline		48.9	UJ
	4,6-dinitro-2-methylphenol		34.0	UJ
	pentachlorophenol		31.6	UJ
	3,3'-dichlorobenzidine		43.3	UJ
90289	chloromethane	34.8	35.4	J/UJ
	acetone	29.4	-58.4	J/UJ
	bromoform		34.8/26.0	J/UJ
	hexachlorocyclopentadiene		33.4/47.0	J/UJ
	3,3'-dichlorobenzidine		28.6	J/UJ
90291	bromomethane		36.4	J/UJ
	acetone	30.6		J/UJ
	hexachlorocyclopentadiene		33.4	J/UJ
90298	acetone	30.6		J/UJ
	hexachlorocyclopentadiene		32.4	J/UJ
90299	hexachlorocyclopentadiene		32.4	J-C/UJ-C
90330	phenol		28.6	J/UJ
	bis(2-chloroethyl) ether		38.9	J/UJ
	n-nitroso-di-n-propylamine		38.7	J/UJ
	di-n-octyl phthalate		30.3	J/UJ
90331	phenol		28.6	UJ
	bis(2-chloroethyl) ether		38.9	UJ
	2,2'-oxybis(1-chloropropane)		29.9	UJ
	n-nitroso-di-n-propylamine		38.7	UJ
	di-n-octyl phthalate		30.3	UJ
	¹ bis(2-chloroethyl) ether		29.6	UJ
	¹ 2,2'-oxybis(1-chloropropane)		59.3	UJ
	¹ di-n-octyl phthalate		32.1	UJ
	¹ 2,4-dinitrophenol		26.1	UJ
	¹ 4-nitrophenol		28.9	UJ

See notes at end of table.

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Table B-4 (Continued)
Summary of Compounds Exceeding Instrument Calibration

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Sample Delivery Group	Organic Compound	Criteria		Qualifiers
		%RSD	%D	
90333	bis(2-chloroethyl) ethyl		29.6	J/UJ
	2,2'-oxybis(1-chloropropane)		59.3	J/UJ
	2,4-dinitrophenol		26.1	J/UJ
	4-nitrophenol		28.9	J/UJ
	di-n-octyl phthalate		32.1	J/UJ
90334	bis(2-chloroethyl) ether		29.6	UJ
	2,2'-oxybis(1-chloropropane)		59.3	UJ
	2,4-dinitrophenol		26.1	UJ
	4-nitrophenol		28.9	UJ
	di-n-octyl phthalate		32.1	UJ
	¹ 2,2'-oxybis(1-chloropropane)		28.0	UJ
	¹ 2,4-dinitrophenol		45.3	UJ
	¹ di-n-octyl phthalate		33.6	UJ
	¹ 3-nitroaniline		29.8	UJ
	¹ 4-nitroaniline		41.6	UJ
90337	bis(2chloroethyl) ether		29.6	UJ
	2,2'-oxybis(1-chloropropane)		59.3	UJ
	2,4-dinitrophenol		26.1	UJ
	4-nitrophenol		28.9	UJ
	di-n-octyl phthalate		32.1	UJ
	n-nitroso-di-n-propylamine		27.5	UJ
	¹ 2,2'-oxybis(1-chloropropane)		55.6	UJ
	¹ di-n-octyl phthalate		33.6	UJ
	¹ bis(2chloroethyl) ether		27.6	UJ
	¹ 2,2'-oxybis(1-chloropropane)		57.8	UJ
	¹ di-n-octyl phthalate		32.6	UJ
	bromomethane		30.9	UJ
90343	acetone	30.6		UJ
	2,2'-oxybis(1-chloropropane)		55.6	UJ
	di-n-octyl phthalate		33.6	UJ
	bis(2-chloroethyl) ether		27.6	UJ
	n-nitroso-di-n-propylamine		27.5	UJ
	¹ 2,2'-oxybis(1-chloropropane)		57.8	UJ
	¹ di-n-octyl phthalate		32.6	UJ
90353	acetone	30.6		UJ
	bromomethane		30.9	UJ
	2,2'-oxybis(1-chloropropane)		55.6	UJ
	bis(2-chloroethyl) ether		27.6	UJ
	n-nitroso-di-n-propylamine		27.5	UJ
	di-n-octyl phthalate		32.6	UJ
	3-nitroaniline		29.8	UJ
	4-nitrophenol		45.3	UJ
	4-nitroaniline		41.6	UJ
	¹ acetone	30.6		UJ
	¹ 2,2'-oxybis(1-chloropropane)		57.8	UJ
	¹ di-n-octyl phthalate		34.5	UJ
	¹ acetone	30.6		UJ
	¹ 2,2'-oxybis(1-chloropropane)		28.0	UJ

See notes at end of table.

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Table B-4 (Continued)
Summary of Compounds Exceeding Instrument Calibration

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Sample Delivery Group	Organic Compound	Criteria		Qualifiers
		%RSD	%D	
90359	acetone	30.6		UJ
	bis(2-chloroethyl) ether		29.6	UJ
	2,2'-oxybis(1-chloropropane)		59.3	UJ
	2,4-dinitrophenol		26.1	UJ
	4-nitrophenol		28.9	UJ
	di-n-octyl phthalate		32.1	UJ

¹ Value from calibration for dilution samples

Notes: %RSD = percent Relative Standard Deviation for initial calibrations

%D = percent Difference for continuing calibrations

J = the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, either because its concentration was lower than the QL (laboratory "J" flag), or because QC criteria were not met (validation "J," plus subqualifier).

UJ = the analyte was not detected above the reported sample QL. However, the reported sample QL is approximate; the compound concentration may not reliably be presumed to be less than the QL value.

S = the value reported was qualified due to surrogate or matrix spike recovery problems.

R = the sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

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Lab Sample Number: Site Locator Collect Date:	90177003 WHITING WHFRB-2 18-OCT-93	90180001 WHITING WHFRB-3 20-OCT-93	90186002 WHITING WHFRB-4 25-OCT-93	90189002 WHITING WHFRB-5 27-OCT-93					
	VALUE QUAL UNITS	DL	VALUE QUAL UNITS	DL	VALUE QUAL UNITS	DL	VALUE QUAL UNITS	DL	
CLP: VOLATILES 90-SOW	ug/l								
Chloromethane	- U	ug/l	10	- U	ug/l	10	- U	ug/l	10
Methylene chloride	- U	ug/l	10	- U	ug/l	10	- U	ug/l	10
CLP: SEMIVOLATILES 90-SOW	ug/l								
Phenol	2 J	ug/l	10	- U	ug/l	10	- U	ug/l	10
Di-n-butylphthalate	- U	ug/l	10	12	ug/l	10	11	ug/l	10
bis(2-Ethylhexyl) phthalate	- U	ug/l	10	- U	ug/l	10	- U	ug/l	10
CLP: PESTICIDES/PCBS 90-SOW	ug/l								
CLP: METALS AND CYANIDE	ug/l								
Aluminum	- U	ug/l	200	32.4 J	ug/l	200	- U	ug/l	200
Antimony	- U	ug/l	60	- U	ug/l	60	- U	ug/l	60
Barium	- U	ug/l	200	- UJ	ug/l	200	- UJ	ug/l	200
Beryllium	.41 J	ug/l	5	- UJ	ug/l	5	- UJ	ug/l	5
Calcium	- U	ug/l	5000	- UJ	ug/l	5000	- UJ	ug/l	5000
Chromium	- U	ug/l	10	- U	ug/l	10	- U	ug/l	10
Cobalt	- U	ug/l	50	- U	ug/l	50	- U	ug/l	50
Copper	- U	ug/l	25	2.3 J	ug/l	25	10.8 J	ug/l	25
Iron	- U	ug/l	100	- U	ug/l	100	- U	ug/l	100
Lead	- U	ug/l	3	- U	ug/l	3	- U	ug/l	3
Magnesium	- U	ug/l	5000	- U	ug/l	5000	- U	ug/l	5000
Manganese	- U	ug/l	15	.81 J	ug/l	15	- U	ug/l	15
Mercury	- U	ug/l	.2	- U	ug/l	.2	- U	ug/l	.2
Nickel	- UJ	ug/l	40	- U	ug/l	40	- U	ug/l	40
Potassium	- U	ug/l	5000	- U	ug/l	5000	- U	ug/l	5000
Silver	- U	ug/l	10	- U	ug/l	10	- U	ug/l	10
Sodium	- U	ug/l	5000	65.4 J	ug/l	5000	42.4 J	ug/l	5000
Vanadium	- U	ug/l	50	3.3 J	ug/l	50	- U	ug/l	50
Zinc	- UJ	ug/l	25	2.3 J	ug/l	20	- U	ug/l	20
Cyanide	2.7 J	ug/l	10	- U	ug/l	10	- U	ug/l	10

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Lab Sample Number:	90194003			90196001			90199001			90271003		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHFRB-6			WHFRB-7			WHFRB-8			WHFRB-9		
Collect Date:	29-OCT-93			01-NOV-93			03-NOV-93			03-DEC-93		
	VALUE	QUAL UNITS	DL									
CLP VOLATILES 90-SOW	ug/l											
Chloromethane	- UJ	ug/l	10	- U	ug/l	10	- UJ	ug/l	10	- UJ	ug/l	10
Methylene chloride	- U	ug/l	10									
CLP SEMIVOLATILES 90-SOW	ug/l											
Phenol	- U	ug/l	10	- U	ug/l	10	1 J	ug/l	10	- U	ug/l	10
Di-n-butylphthalate	7 J	ug/l	10	16	ug/l	10	6 J	ug/l	10	6 J	ug/l	10
bis(2-Ethylhexyl) phthalate	- U	ug/l	10									
CLP PESTICIDES/PCBS 90-SOW	ug/l											
CLP METALS AND CYANIDE	ug/l											
Aluminum	- U	ug/l	200									
Antimony	- U	ug/l	60	- U	ug/l	60	- U	ug/l	60	24.5 J	ug/l	60
Barium	- UJ	ug/l	200	- UJ	ug/l	200	- U	ug/l	200	- U	ug/l	200
Beryllium	- U	ug/l	5	- U	ug/l	5	- UJ	ug/l	5	- U	ug/l	5
Calcium	- UJ	ug/l	5000	- UJ	ug/l	5000	- U	ug/l	5000	- U	ug/l	5000
Chromium	- U	ug/l	10									
Cobalt	- U	ug/l	50									
Copper	- U	ug/l	25	- U	ug/l	25	5.3 J	ug/l	25	- U	ug/l	25
Iron	- U	ug/l	100									
Lead	- U	ug/l	3									
Magnesium	- U	ug/l	5000									
Manganese	- U	ug/l	15	- U	ug/l	15	.97 J	ug/l	15	- U	ug/l	15
Mercury	- U	ug/l	.2									
Nickel	- U	ug/l	40									
Potassium	- U	ug/l	5000									
Silver	- U	ug/l	10	- U	ug/l	10	- U	ug/l	10	4.4 J	ug/l	10
Sodium	33.1 J	ug/l	5000	26.3 J	ug/l	5000	33.1 J	ug/l	5000	28.4 J	ug/l	5000
Vanadium	- U	ug/l	50									
Zinc	- U	ug/l	25	- U	ug/l	20	1.7 J	ug/l	20	- U	ug/l	20
Cyanide	- U	ug/l	10									

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Lab Sample Number:	90214001			90221003			90225003			90236001		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHFRB-10			WHFRB-11			WHFRB-12			WHFRB-13		
Collect Date:	24-NOV-93			12-NOV-93			15-NOV-93			17-NOV-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW	ug/l											
Chloromethane	- U	ug/l	10	- U	ug/l	10	- U	ug/l	10	- U	ug/l	10
Methylene chloride	- U	ug/l	10	- U	ug/l	10	- U	ug/l	10	- U	ug/l	10
CLP SEMIVOLATILES 90-SOW	ug/l											
Phenol	- U	ug/l	10	- U	ug/l	10	- U	ug/l	10	- U	ug/l	10
Di-n-butylphthalate	6 J	ug/l	10	- U	ug/l	10	- U	ug/l	10	- U	ug/l	10
bis(2-Ethylhexyl) phthalate	- U	ug/l	10	- U	ug/l	10	- U	ug/l	10	- U	ug/l	10
CLP PESTICIDES/PCBS 90-SOW	ug/l											
CLP METALS AND CYANIDE	ug/l											
Aluminum	- U	ug/l	200	44.3 J	ug/l	200	- U	ug/l	200	- U	ug/l	200
Antimony	- U	ug/l	60	- U	ug/l	60	- U	ug/l	60	- U	ug/l	60
Barium	- U	ug/l	200	- U	ug/l	200	- U	ug/l	200	- U	ug/l	200
Beryllium	- U	ug/l	5	- U	ug/l	5	- U	ug/l	5	- U	ug/l	5
Calcium	- U	ug/l	5000	- U	ug/l	5000	- U	ug/l	5000	- U	ug/l	200
Chromium	- U	ug/l	10	- U	ug/l	10	- U	ug/l	10	- U	ug/l	10
Cobalt	- U	ug/l	50	- U	ug/l	50	- U	ug/l	50	- U	ug/l	50
Copper	- U	ug/l	25	- U	ug/l	25	- U	ug/l	25	- U	ug/l	25
Iron	- U	ug/l	100	56.1 J	ug/l	100	- U	ug/l	100	179	ug/l	100
Lead	1.1 J	ug/l	3	- U	ug/l	3	- U	ug/l	3	- U	ug/l	3
Magnesium	- U	ug/l	5000	- U	ug/l	5000	- U	ug/l	5000	- U	ug/l	5000
Manganese	- U	ug/l	15	- U	ug/l	15	- U	ug/l	15	.89 J	ug/l	15
Mercury	.84	ug/l	.2	- U	ug/l	.2	- U	ug/l	.2	1.6	ug/l	.2
Nickel	- U	ug/l	40	10 J	ug/l	40	- U	ug/l	40	- U	ug/l	40
Potassium	- U	ug/l	5000	- U	ug/l	5000	- U	ug/l	5000	- U	ug/l	5000
Silver	- U	ug/l	10	- U	ug/l	10	- U	ug/l	10	- U	ug/l	10
Sodium	53 J	ug/l	5000	144 J	ug/l	5000	109 J	ug/l	5000	35.7 J	ug/l	5000
Vanadium	- U	ug/l	50	- U	ug/l	50	- U	ug/l	50	- U	ug/l	50
Zinc	- U	ug/l	20	9.8 J	ug/l	20	- U	ug/l	25	- U	ug/l	20
Cyanide	- U	ug/l	10	2.1 J	ug/l	10	- U	ug/l	10	- U	ug/l	10

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Lab Sample Number:	90242003			90253003			90265001			90272003		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHFRB-14			WHFRB-15			WHFRB-16			WHFRB-17		
Collect Date:	19-NOV-93			30-NOV-93			02-DEC-93			06-DEC-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW	ug/l											
Chloromethane	- U	ug/l	10		- UJ	ug/l	10		- UJ	ug/l	10	
Methylene chloride	- U	ug/l	10		- U	ug/l	10		- U	ug/l	10	
CLP SEMIVOLATILES 90-SOW	ug/l											
Phenol	- U	ug/l	10		- U	ug/l	10		- U	ug/l	10	
Di-n-butylphthalate	- UJ	ug/l	10		7 J	ug/l	10		8 J	ug/l	10	
bis(2-Ethylhexyl) phthalate	2 J	ug/l	10		- U	ug/l	10		- U	ug/l	10	
CLP PESTICIDES/PCBS 90-SOW	ug/l											
CLP METALS AND CYANIDE	ug/l											
Aluminum	- U	ug/l	200		- U	ug/l	200		- U	ug/l	200	
Antimony	- U	ug/l	60		- U	ug/l	60		- U	ug/l	60	
Barium	- U	ug/l	200		- U	ug/l	200		- U	ug/l	200	
Beryllium	- U	ug/l	5		- U	ug/l	5		- U	ug/l	5	
Calcium	- UJ	ug/l	5000		- U	ug/l	5000		- U	ug/l	5000	
Chromium	- U	ug/l	10		- U	ug/l	10		5.1 J	ug/l	10	
Cobalt	- U	ug/l	50		- U	ug/l	50		5 J	ug/l	50	
Copper	2.7 J	ug/l	25		- U	ug/l	25		3.9 J	ug/l	25	
Iron	- U	ug/l	100		- U	ug/l	100		- U	ug/l	100	
Lead	- U	ug/l	3		- U	ug/l	3		- U	ug/l	3	
Magnesium	- U	ug/l	5000		- U	ug/l	5000		40.5 J	ug/l	5000	
Manganese	- U	ug/l	15		- U	ug/l	15		- U	ug/l	15	
Mercury	- U	ug/l	.2		.16 J	ug/l	.2		- U	ug/l	.2	
Nickel	- U	ug/l	40		- U	ug/l	40		- U	ug/l	40	
Potassium	- U	ug/l	5000		- U	ug/l	5000		- U	ug/l	5000	
Silver	- U	ug/l	10		- U	ug/l	10		- U	ug/l	10	
Sodium	49.5 J	ug/l	5000		49.8 J	ug/l	5000		81.1 J	ug/l	5000	
Vanadium	- U	ug/l	50		- U	ug/l	50		- U	ug/l	50	
Zinc	- U	ug/l	20		- U	ug/l	20		- U	ug/l	20	
Cyanide	2.1 J	ug/l	10		- UJ	ug/l	10		- U	ug/l	10	

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Lab Sample Number:	90280001			90286001			90289001			90320001		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHFRB-18			WHFRB-19			WHFRB-20			WHFRB-22		
Collect Date:	08-DEC-93			10-DEC-93			13-DEC-93			10-JAN-94		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW	ug/l											
Chloromethane	- U	ug/l	10		- U	ug/l	10		- U	ug/l	10	
Methylene chloride	9 J	ug/l	10		- U	ug/l	10		- U	ug/l	10	
CLP SEMIVOLATILES 90-SOW	ug/l											
Phenol	- U	ug/l	10		- U	ug/l	10		- U	ug/l	10	
Di-n-butylphthalate	4 J	ug/l	10		7 J	ug/l	10		7 J	ug/l	10	
bis(2-Ethylhexyl) phthalate	- U	ug/l	10		- U	ug/l	10		- U	ug/l	10	
CLP PESTICIDES/PCBS 90-SOW	ug/l											
CLP METALS AND CYANIDE	ug/l											
Aluminum	20.3 J	ug/l	200		- U	ug/l	200		- U	ug/l	200	
Antimony	- U	ug/l	60		- U	ug/l	60		- U	ug/l	60	
Barium	.8 J	ug/l	200		1 J	ug/l	200		1.4 J	ug/l	200	
Beryllium	- U	ug/l	5		- U	ug/l	5		- U	ug/l	5	
Calcium	25.4 J	ug/l	5000		30.7 J	ug/l	5000		50.2 J	ug/l	5000	
Chromium	- U	ug/l	10		- U	ug/l	10		- U	ug/l	10	
Cobalt	- U	ug/l	50		- U	ug/l	50		- U	ug/l	50	
Copper	2.1 J	ug/l	25		3.4 J	ug/l	25		8.1 J	ug/l	25	
Iron	13.6 J	ug/l	100		8.5 J	ug/l	100		10.4 J	ug/l	100	
Lead	- U	ug/l	3		- U	ug/l	3		- U	ug/l	3	
Magnesium	- U	ug/l	5000		- U	ug/l	5000		29.3 J	ug/l	5000	
Manganese	- U	ug/l	15		- U	ug/l	15		.66 J	ug/l	15	
Mercury	- U	ug/l	.2		- U	ug/l	.2		- U	ug/l	.2	
Nickel	- U	ug/l	40		- U	ug/l	40		- U	ug/l	40	
Potassium	- U	ug/l	5000		- U	ug/l	5000		1060 J	ug/l	5000	
Silver	- U	ug/l	10		- U	ug/l	10		- U	ug/l	10	
Sodium	122 J	ug/l	5000		89 J	ug/l	5000		110 J	ug/l	5000	
Vanadium	- U	ug/l	50		- U	ug/l	50		- U	ug/l	50	
Zinc	3.3 J	ug/l	20		3 J	ug/l	20		4.1 J	ug/l	20	
Cyanide	- U	ug/l	10		- U	ug/l	10		- U	ug/l	10	

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Lab Sample Number:	90330001			90334001			90334001DL			90334001RE		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHFRB-23			WHFRB-24			WHFRB-24DL			WHFRB-24RE		
Collect Date:	12-JAN-94			14-JAN-94			14-JAN-94			14-JAN-94		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW	ug/l											
Chromomethane	- U	ug/l		10	- U	ug/l		10	-	ug/l		- ug/l
Methylene chloride	- UJ	ug/l		10	2 UUJ	ug/l		10	-	ug/l		- ug/l
CLP SEMIVOLATILES 90-SOW	ug/l											
Phenol	- UJ	ug/l		10	- U	ug/l		10	- U	ug/l		10
Di-n-butylphthalate	10 J	ug/l		10	- UJ	ug/l		10	- UJ	ug/l		10
bis(2-Ethylhexyl) phthalate	- U	ug/l		10	210	ug/l		10	210	ug/l		10
CLP PESTICIDES/PCBS 90-SOW	ug/l											
CLP METALS AND CYANIDE	ug/l											
Aluminum	24.6 J	ug/l		200	- U	ug/l		200	-	ug/l		- ug/l
Antimony	- U	ug/l		60	- U	ug/l		60	-	ug/l		- ug/l
Barium	- U	ug/l		200	- U	ug/l		200	-	ug/l		- ug/l
Beryllium	- U	ug/l		5	- U	ug/l		5	-	ug/l		- ug/l
Calcium	- U	ug/l		5000	- U	ug/l		5000	-	ug/l		- ug/l
Chromium	- U	ug/l		10	- U	ug/l		10	-	ug/l		- ug/l
Cobalt	- U	ug/l		50	- U	ug/l		50	-	ug/l		- ug/l
Copper	- U	ug/l		25	- U	ug/l		25	-	ug/l		- ug/l
Iron	- U	ug/l		100	7.8 J	ug/l		100	-	ug/l		- ug/l
Lead	- U	ug/l		3	- U	ug/l		3	-	ug/l		- ug/l
Magnesium	- U	ug/l		5000	- U	ug/l		5000	-	ug/l		- ug/l
Manganese	- U	ug/l		15	- U	ug/l		15	-	ug/l		- ug/l
Mercury	- U	ug/l		.2	- U	ug/l		.2	-	ug/l		- ug/l
Nickel	- U	ug/l		40	- U	ug/l		40	-	ug/l		- ug/l
Potassium	- U	ug/l		5000	- U	ug/l		5000	-	ug/l		- ug/l
Silver	- U	ug/l		10	- U	ug/l		10	-	ug/l		- ug/l
Sodium	55 J	ug/l		5000	- UJ	ug/l		5000	-	ug/l		- ug/l
Vanadium	- U	ug/l		50	- U	ug/l		50	-	ug/l		- ug/l
Zinc	- U	ug/l		20	- UJ	ug/l		20	-	ug/l		- ug/l
Cyanide	- U	ug/l		10	- U	ug/l		10	-	ug/l		- ug/l

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Lab Sample Number:	90337001	90353001
Site	WHITING	WHITING
Locator	WHFRB-25	WHFRB-26
Collect Date:	18-JAN-94	20-JAN-94

	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW	ug/l							
Chloromethane	- U	ug/l	10		- U	ug/l	10	
Methylene chloride	- UJ	ug/l	10		- U	ug/l	10	
CLP SEMIVOLATILES 90-SOW	ug/l							
Phenol	- U	ug/l	10		- U	ug/l	10	
Di-n-butylphthalate	- UJ	ug/l	10		- UJ	ug/l	10	
bis(2-Ethylhexyl) phthalate	- U	ug/l	10		- U	ug/l	10	
CLP PESTICIDES/PCBS 90-SOW	ug/l							
CLP METALS AND CYANIDE	ug/l							
Aluminum	- U	ug/l	200		- U	ug/l	200	
Antimony	- U	ug/l	60		- U	ug/l	60	
Barium	- U	ug/l	200		- U	ug/l	200	
Beryllium	- U	ug/l	5		- U	ug/l	5	
Calcium	- U	ug/l	5000		- U	ug/l	5000	
Chromium	- U	ug/l	10		- U	ug/l	10	
Cobalt	- U	ug/l	50		- U	ug/l	50	
Copper	- U	ug/l	25		- U	ug/l	25	
Iron	- U	ug/l	100		- U	ug/l	100	
Lead	- U	ug/l	3		- U	ug/l	3	
Magnesium	- U	ug/l	5000		- U	ug/l	5000	
Manganese	- U	ug/l	15		- U	ug/l	15	
Mercury	- U	ug/l	.2		- U	ug/l	.2	
Nickel	- U	ug/l	40		- U	ug/l	40	
Potassium	- U	ug/l	5000		- U	ug/l	5000	
Silver	- U	ug/l	10		- U	ug/l	10	
Sodium	- UJ	ug/l	5000		- UJ	ug/l	5000	
Vanadium	- U	ug/l	50		- U	ug/l	50	
Zinc	- UJ	ug/l	20		- UJ	ug/l	20	
Cyanide	- U	ug/l	10		- U	ug/l	10	

07/18/94 NAS WHITING - TRIP BLANK - ANALYTICAL DATA 14:01:29

Lab Sample Number:	90174001	90175003	90177004	90178003							
Site	WHITING	WHITING	WHITING	WHITING							
Locator	WHFTB1	WHFTB-2	WHFTB-3	WHFTB-4							
Collect Date:	14-OCT-93	15-OCT-93	18-OCT-93	19-OCT-93							
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP VOLATILES 90-SOW
Methylene chloride
Acetone

ug/l

- U	ug/l	10									
- U	ug/l	10	- U	ug/l	10	13	ug/l	10	15	ug/l	10

07/18/94 NAS WHITING - TRIP BLANK - ANALYTICAL DATA 14:01:29

Lab Sample Number:	90180003	90181004	90186003	90188003								
Site	WHITING	WHITING	WHITING	WHITING								
Locator	WHFTB-5	WHFTB-6	WHFTB-7	WHFTB-8								
Collect Date:	20-OCT-93	21-OCT-93	25-OCT-93	26-OCT-93								
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
ug/l	- U	ug/l	10	- U	ug/l	10	- U	ug/l	10	- U	ug/l	10
	15	ug/l	10	66	ug/l	10	11	ug/l	10	9 J	ug/l	10

07/18/94 NAS WHITING - TRIP BLANK - ANALYTICAL DATA 14:01:29

Lab Sample Number:	90189003	90191003	90194002	90196003							
Site Locator	WHITING WHFTB-9	WHITING WHFTB-10	WHITING WHFTB-11	WHITING WHFTB-12							
Collect Date:	27-OCT-93	28-OCT-93	29-OCT-93	01-NOV-93							
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP VOLATILES 90-SOW
Methylene chloride
Acetone

ug/l	- U	ug/l	10	- U	ug/l	10	- U	ug/l	10	- U	ug/l	10
	12	ug/l	10	11	ug/l	10	~ U	ug/l	10	- UJ	ug/l	10

07/18/94 NAS WHITING - TRIP BLANK - ANALYTICAL DATA 14:01:29

Lab Sample Number:	90198005	90199006	90271004	90210005				
Site	WHITING	WHITING	WHITING	WHITING				
Locator	WHFTB-13	WHFTB-14	WHFTB-16	WHFTB-17				
Collect Date:	02-NOV-93	03-NOV-93	03-DEC-93	09-NOV-93				
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP VOLATILES 90-SOW
Methylene chloride
Acetone

ug/l	- U	ug/l	10	- U	ug/l	10	- U	ug/l	10	- UJ	ug/l	10
	- UJ	ug/l	10	- UJ	ug/l	10	- U	ug/l	10	7 J	ug/l	10

07/18/94 NAS WHITING - TRIP BLANK - ANALYTICAL DATA 14:01:29

Lab Sample Number:	90214005	90272004	90220003	90221004				
Site	WHITING	WHITING	WHITING	WHITING				
Locator	WHFTB-18	WHFTB-19	WHFTB-20	WHFTB-21				
Collect Date:	24-NOV-93	06-DEC-93	11-NOV-93	12-NOV-93				
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP VOLATILES 90-SOW
Methylene chloride
Acetone

ug/l

- UJ	ug/l	10	- U	ug/l	10	- UJ	ug/l	10	- UJ	ug/l	10
- UJ	ug/l	10	- U	ug/l	10	- UJ	ug/l	10	- UJ	ug/l	10

07/18/94 NAS WHITING - TRIP BLANK - ANALYTICAL DATA 14:01:29

Lab Sample Number:	90225004	90226K05	90236002	90240004							
Site	WHITING	WHITING	WHITING	WHITING							
Locator	WHFTB-22	WHFTB-23	WHFTB-24	WHFTB-25							
Collect Date:	15-NOV-93	16-NOV-93	17-NOV-93	18-NOV-93							
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP VOLATILES 90-SOW
Methylene chloride
Acetone

ug/l	1 J	ug/l	10	- U	ug/l	10	2 J	ug/l	10	2 J	ug/l	10
	- UJ	ug/l	10	- UJ	ug/l	10	- UJ	ug/l	10	8 J	ug/l	10

07/18/94 NAS WHITING - TRIP BLANK - ANALYTICAL DATA 14:01:29

Lab Sample Number:	90242002			90256002			90265004			90278003		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHFTB-26			WHFTB-28			WHFTB-29			WHFTB-30		
Collect Date:	19-NOV-93			01-DEC-93			02-DEC-93			07-DEC-93		
VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	

CLP VOLATILES 90-SOW
 Methylene chloride
 Acetone

ug/l

2 J	ug/l	10	- U	ug/l	10	- U	ug/l	10	- U	ug/l	10
8 J	ug/l	10	- U	ug/l	10	- U	ug/l	10	- U	ug/l	10

07/18/94 NAS WHITING - TRIP BLANK - ANALYTICAL DATA 14:01:29

Lab Sample Number:	90280006	Site	WHITING	Locator	WHFTB-31	Collect Date:	08-DEC-93	90285004	WHITING	WHITING	WHITING	90286003	WHITING	90289003	WHITING
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	DL	VALUE	QUAL UNITS	DL	
CLP VOLATILES 90-SOW	ug/l														
Methylene chloride		8 J	ug/l	10	- U	ug/l	10	- U	ug/l	10	14	ug/l	10		
Acetone		- UJ	ug/l	10	- UJ	ug/l	10	- UJ	ug/l	10	12 J	ug/l	10		

07/18/94 NAS WHITING - TRIP BLANK - ANALYTICAL DATA 14:01:29

Lab Sample Number:	90291004	90298002	90325004	90330003				
Site	WHITING	WHITING	WHITING	WHITING				
Locator	WHFTB-35	WHFTB-37	WHFTB-39	WHFTB-40				
Collect Date:	14-DEC-93	16-DEC-93	11-JAN-94	12-JAN-94				
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP VOLATILES 90-SOW
 Methylene chloride
 Acetone

ug/l

- U	ug/l	10	1 J	ug/l	10	- UJ	ug/l	10	- UJ	ug/l	10
2 J	ug/l	10	- UJ	ug/l	10	- UJ	ug/l	10	- U	ug/l	10

07/18/94 NAS WHITING - TRIP BLANK - ANALYTICAL DATA 14:01:29

Lab Sample Number:	90333003	90334003	90337005	90359002							
Site	WHITING	WHITING	WHITING	WHITING							
Locator	WHFTB-41	WHFTB-42	WHFTB-43	WHFTB-46							
Collect Date:	13-JAN-94	14-JAN-94	18-JAN-94	21-JAN-94							
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP VOLATILES 90-SOW
Methylene chloride
Acetone

ug/l	- UJ	ug/l	10	- UJ	ug/l	10	- UJ	ug/l	10	- U	ug/l	10
	- U	ug/l	10	- U	ug/l	10	- U	ug/l	10	- UJ	ug/l	10

07/18/94 NAS WHITING - FIELD BLANKS - ANALYTICAL DATA 14:12:05

Lab Sample Number:	90174002	Site	WHITING	Lab Sample Number:	90298001	Site	WHITING
Locator	WHFFB1		<th>Locator</th> <td>WHFFB-2</td> <th></th> <td> </td>	Locator	WHFFB-2		
Collect Date:	14-OCT-93		<th>Collect Date:</th> <td>16-DEC-93</td> <th></th> <td> </td>	Collect Date:	16-DEC-93		
	VALUE	QUAL UNITS	DL		VALUE	QUAL UNITS	DL

CLP VOLATILES 90-SOW Chloromethane	ug/l	- UJ	ug/l	10	2 J	ug/l	10
CLP SEMIVOLATILES 90-SOW Phenol	ug/l	2 J	ug/l	10	- UJ	ug/l	10
Di-n-butylphthalate		20	ug/l	10	9 J	ug/l	10
CLP PESTICIDES/PCBS 90-SOW	ug/l						
CLP METALS AND CYANIDE	ug/l						
Copper		- U	ug/l	25	8.2 J	ug/l	25
Iron		- U	ug/l	100	4.5 J	ug/l	100
Sodium		- U	ug/l	5000	48.4 J	ug/l	5000
Zinc		- UJ	ug/l	20	5.4 J	ug/l	20

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Table B-6
Summary of Laboratory Preparation Blanks

Remedial Investigation and Feasibility Study, Phase IIA
Technical Memorandum No. 5, Groundwater Assessment
NAS Whiting Field, Milton, Florida

Sample Delivery Group	Sample Identification	Analyte/Parameter	Amount	Comments
90337	VBLKIU	Methylene chloride		UJ
	SBLKWI	bis(2-Ethylhexyl)phthalate		UJ
	SBLKWZ	Di-n-butylphthalate		UJ
90343	VBLK24	Methylene chloride	2	UJ
		Acetone	6	J/UJ
	SBLKW4A	Di-n-butylphthalate	0.8/6/9	UJ
	SBLKW5	Di-n-butylphthalate	0.7/6/9	UJ
90353	VBLK24	Methylene chloride	2	UJ
		Acetone	6	UJ
	SBLK4A	Di-n-butylphthalate	0.8/6/4	UJ
	SBLK5	Di-n-butylphthalate	0.7/6/9	UJ
	SBLK7	Di-n-butylphthalate	0.6/4/9	UJ
90359	SBLKWZ	Di-n-butylphthalate	0.8	UJ
90226		none detected		
90253		none detected		
90256		none detected		
90257		none detected		
90285		none detected		
90286		none detected		
90291		none detected		
90298	VBLKOT	Acetone		
90320	VBLK19	Methylene chloride		
	SBLKW2	Di-n-butylphthalate		
90325	VBLKIK	Methylene chloride		
		Acetone		
	SBLWK2	Di-n-butylphthalate		
		bis(2-Ethylhexyl)phthalate		
90331	VBLKIK	Methylene chloride		
		Acetone		
	SBLKWI	Di-n-butylphthalate		
	SBLK2	bis(2-Ethylhexyl)phthalate		
		bis(
90334	VBLKIK	Methylene chloride	2	UJ
		Acetone	7	UJ
	VBLKIP	Methylene chloride	1	UJ
		Acetone	9	UJ
	SBLKWI	Di-n-butylphthalate	5	UJ
		bis(2-Ethylhexyl)phthalate	4	UJ
	SBLK2	Di-n-butylphthalate	0.8	UJ
90174	SBLK-6Q	Di-n-octylphthalate	3 J/UJ	
90175	SBLK-6Q	Di-n-octylphthalate	3 J/UJ	
90177 clean		none detected		
90178 clean		none detected		
90179 clean		none detected		

See notes at end of table.

Table B-6 (Continued)
Summary of Laboratory Preparation Blanks

Remedial Investigation and Feasibility Study, Phase IIA
 Technical Memorandum No. 5, Groundwater Assessment
 NAS Whiting Field, Milton, Florida

Sample Delivery Group	Sample Identification	Analyte/Parameter	Amount	Comments
90180	PBLK-I	Beta-BHC Heptachlor	0.025 J/UJ 0.006 J/UJ	
90181		none detected		
90186		none detected		
90188		none detected		
90189		none detected		
90190		none detected		
90191		none detected		
90194		none detected		
90196		none detected		
90198		none detected		
90199		none detected		
90203		none detected		
90210	VBLKW	Methylene chloride Benzene	3 J/UJ 2 J/UJ	
90214	VBLKW	Methylene chloride Benzene 1,1,2,2-Tetrachloroethane	5 J/UJ 2 J/UJ 2 J	
90220	VBLKW	Methylene chloride Benzene	5 J/UJ 2 J/UJ	
90221	VBLKW	Methylene chloride Benzene	5 J/UJ 2 J/UJ	
90225	VBLKW	Acetone	2 UJ	
90236	VBLKW	Acetone	7 UJ	
90240	VBLKW	Acetone	0.8	
90242	SBLKW	Di-n-butylphthalate	22 UJ	
90265		none detected		
90275		none detected		
90272		none detected		
90278		none detected		
90280		none detected		
90289		none detected		
90299		none detected		
90330	VBLKIK	Methylene chloride	2 UJ	
	SBLKWI	Acetone	7 UJ	
90333	VBLKIK	Methylene chloride Acetone Di-n-butylphthalate bis(2-Ethylhexyl)phthalate	2 UJ 7 UJ 0.8, 10, 9 UJ 23 UJ	

Notes: UJ = the analyte was not detected above the reported sample QL. However, the reported sample QL is approximate; the compound concentration may not reliably be presumed to be less than the QL value.

J = the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, either because its concentration was lower than the QL (laboratory "J" flag), or because QC criteria were not met (validation "J," plus subqualifier).

Table B-7
Summary of Surrogate Recoveries

Remedial Investigation and Feasibility Study, Phase IIA
Technical Memorandum No. 5, Groundwater Assessment
NAS Whiting Field, Milton, Florida

Sample Delivery Group	Sample Identification	Analysis/Parameter	Percent Recovery	QC Limits	No. of Samples	Comments
90174	WHF-BKG-3	PHL	0	10-110	1	R - original (14 analytes)
		2FP	10	21-110		
		2CP	4	33-110		
90174	WHF-BKG-RE	PHL	82	10-110	1	J/UJ
		2FP	34	21-110		
		2CP	97	33-110		
90174	WHF-BKG-3 WHF-BKG-2	DCB	49/49 36/37	60-150	2	J/UJ
90175	WHF-1-3 WHF-BKG-1	DCB	15/50 28/33	60-150	2	J/UJ
	WHF-1-3	TCX	-/47	60-150	1	J/UJ
90177	WHF-1-1B	DCB	35/36	60-150	1	J/UJ
90178	WHF-2-1 SBLK7A	NBZ	124 117	35-114	2	--
	WHF-2-1	2FP	114	21-110	1	--
	WHF-2-1 WHF-1-2 WHF-2-1A	DCB	48/48 44/43 44/44	60-150	3	J/UJ
90179	WHF-17-2BA	DCB	55/55	60-150	1	J-S/UJ-S
90180	WHF-17-1B SBLK7A	NBZ	121 117	35-114	2	--
	WFH17-18	DCB	26/28	60-150	1	J/UJ

See notes at end of table.

Table B-7 (Continued)
Summary of Surrogate Recoveries

Remedial Investigation and Feasibility Study, Phase IIA
Technical Memorandum No. 5, Groundwater Assessment
NAS Whiting Field, Milton, Florida

Sample Delivery Group	Sample Identification	Analysis/Parameter	Percent Recovery	QC Limits	No. of Samples	Comments
90181	WHF-17-3	NBZ	124	35-114	4	--
	WHF-18-1		126	35-114		--
	WHF-18-2		125	35-114		--
	SBLK7B		126	35-114		--
	WHF-17-3	2 FP	111	21-110	2	--
	SBLK7B		117			--
	WHF-18-2	TBP	125	10-123	1	--
	WHF-17-3	TCX	54/52	60-150	2	J/UJ
	PBLK27		58/54			
90186	WHF-18-3	NBZ	123	35-114	2	--
	WHF-RB-4		124			
	WHF-18-3	TBP	125	10-123	2	--
	WHF-RB-4		125			
90186	PBLK27	TCX	58/54	60-150	1	--
90188	WHF-9-1	NBZ, TBP	121, 132	35-114, 10-123	3/3	--
	WHF-9-2		119, 127			
	SBLK7D		123, 125			
90189	WHF-9-3	FBP	119	43-116	1	--
	PBKL01		50/52	60-150	2	J/UJ
	WHF-RF-5		-/54			
90190	PBLK01	TCX, DCB	50/52	60-150, 60-150	3/3	--
	WHF-11-3		-/58, 41/42			
	WHF-11-3A		59/55, 52/57			
	WHF-11-3ARE		57/55			

See notes at end of table.

Table B-7 (Continued)
Summary of Surrogate Recoveries

Remedial Investigation and Feasibility Study, Phase IIA
Technical Memorandum No. 5, Groundwater Assessment
NAS Whiting Field, Milton, Florida

Sample Delivery Group	Sample Identification	Analysis/Parameter	Percent Recovery	QC Limits	No. of Samples	Comments
90191	SBLK7R	TPH	142	33-141	1	--
	WHF-11-2	PHL, ZCP	2, 25	10-110, 33-110	2	J/R - 14 analytes or both samples
	WHF-11-2RE		5, 28			
	PBLK01	TCX, DCB	50/52	60-150, 60-150	2/2	J/UJ
90194	WHF-11-1B		--/52, 48/51			
	WHF-11-1BRE					
	WHF-11-1	FBP	120	43-116	2	--
	WHF-RB-6		117			
90196	SBLK7R	TPH	142	33-141	1	--
	WHF-11-1	PHL/2CP	1,9	10-110, 33-110	2	J/R - rejected 14 analytes in both samples, UJ all rest of RE
	WHF-11-1RE		3,14			
	WHF-RB-6	TCX/DCB	--/55, 55/--	60-/50, 60-150	2	--
90198	PBLK02		--/54			
	WHF-RB-7	TPH	142	33-141	1	--
	WHF-14-2	NBZ	121	35-114	1	--
	WHF-13-1	FBP	119 119	43-116	2	--
90199	SBLK7J	TPH	148	33-141	1	--
	WHF-13-1	TCX	50/44	60-150	3	J/UJ
	WHF-13-2		--/58			
	WHF-14-2		--/56			

See notes at end of table.

Table B-7 (Continued)
Summary of Surrogate Recoveries

Remedial Investigation and Feasibility Study, Phase IIA
Technical Memorandum No. 5, Groundwater Assessment
NAS Whiting Field, Milton, Florida

Sample Delivery Group	Sample Identification	Analysis/Parameter	Percent Recovery	QC Limits	No. of Samples	Comments
90199	WHF-15-3C WHF-15-4 WHF-RB-8 SBLK7K	FBP	118 118 119 121	43-116	4	--
	WHF-15-3C WHF-15-3CRE WHF-15-3D	DCB	50/52 51/52 56/58	60-150	3	J/UJ
90203	WHF-15-3B	BFB	124	86-115	1	J/- there were no positive results so not qualifiers.
90210	WHF-15-2BA	TCX	56/57	60-150	1	UJ
90214	WHF-16-2	NBZ, FBP, TPH, DCB	ok, 117, 144, ok	35-114, 43-116, 33-141, 16-110	1	J/UJ
90220	WHF-16-3D WHF-16-3DA	DCB	45/45 50/52	60-150	2	UJ-S
90221	WHF-16-3C WHF-16-3CD WHF-RB-11	TCX, DCB	33/40, 41/42 30/26 29/28	60-150	3	UJ UJ UJ
90236	WHF-16-5	TCX	-/58	60-150	1	UJ
90240	WHF-16-1B	DCB	54/52	60-150	1	J/UJ
90265	WHF-7-1	SMCs (VOC low)				UJ
90280	WHF-29-3, WHF-29-3A WHF-29-3, WHF-29-3A WHF-29-3, WHF-29-3A WHF-29-3, WHF-29-3A WHF-29-3, WHF-29-3A WHF-29-3, WHF-29-3A WHF-29-3, WHF-29-3A WHF-29-3, WHF-29-3A	NBZ FBP TPH DCB PHL ZFP TBP ZCP	0, D 25, D 12, D -, D 0, D 0, D -, D 0, D		2 2 2 2 2 2 2 2	J/R, J/UJ J/R, J/UJ J/R, J/UJ J/R, J/UJ J/R, J/UJ J/R, J/UJ J/R, J/UJ J/R, J/UJ

See notes at end of table.

Table B-7 (Continued)
Summary of Surrogate Recoveries

Remedial Investigation and Feasibility Study, Phase IIA
Technical Memorandum No. 5, Groundwater Assessment
NAS Whiting Field, Milton, Florida

Sample Delivery Group	Sample Identification	Analysis/Parameter	Percent Recovery	QC Limits	No. of Samples	Comments
	SBLK9N WHF-29-2	PHL, ZCP TCX	125, 122, 22/21	10-110, 33-110, 60-150	1 1	J/- J/UJ
90289	WHF-30-4	NBZ, FBP, TPH, DCB, PHL, 2FP, TBP, ZCP	D, D, D, D, D, D, D		1	J/UJ for all
	WHF-RB-20	PHL, ZCP	118, 113	10-110, 33-110	1	J/-
	SBLK9U	PHL	111	10-110	1	--
90299	WHF-3-20	TCX, DCB	89/74, 65/54	60-150	1	--
90330	WHF-3-1B	TCX	60/0	60-150	1	R
90333	WHF-3-2	TCX	56/57	60-150	1	UJ
90226	WHF-16-4B WHF-16-4CD WHF-16-4BRE	DCB TCX DCB	53/56 /57 48/45	60-150 60-150 60-150	1 1 1	UJ UJ UJ
90253	WHF-5-9D WHF-9DRE	DCB/TCX DCB	54/59 -/57 -/56	60-150, 60-150, 60-150	1 1	UJ UJ
90285	WHF-30-5 WHF-30-2	DCB TCX	-/56 59/53	60-150 60-150	1 1	UJ UJ
90291	WHF-33-5 WHF-33-5RE	DCB	59/58 58/58	60-150	2	UJ
90298	WHF-FB-2	PHL 2CP	115 114	10-110 33-110	1	J/UJ
90325	WHF-3-7D	DCB	56/56	60-150	1	UJ
90343	WHF-32-3	TCX	-/58	60-150	1	UJ
90353	WHF-32-1A WHF-32-4 WHF-32-1ARE	TCX, DCB DCB DCB	58/-, 24/23 53/54 42/41	60-150, 60-150 60-150 60-150	1 1 1	UJ UJ UJ

See notes at end of table.

Table B-7 (Continued)
Summary of Surrogate Recoveries

Remedial Investigation and Feasibility Study, Phase IIA
Technical Memorandum No. 5, Groundwater Assessment
NAS Whiting Field, Milton, Florida

Sample Delivery Group	Sample Identification	Analysis/Parameter	Percent Recovery	QC Limits	No. of Samples	Comments
90359	WHF-5-8D	TCX, DCB	58/52, 35/35	60-150, 60-150	1	UJ
	WHF-5-8DRE	DCB	58/58	60-150	1	UJ

Notes: J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, either because its concentration was lower than the QL (laboratory "J" flag), or because QC criteria were not met (validation "J," plus subqualifier).

UJ = The analyte was not detected above the reported sample QL. However, the reported sample QL is approximate; the compound concentration may not reliably be presumed to be less than the QL value.

Compound:	Water:
TOL = toluene-d8	88-110
BFB = bromofluorobenzene	86-115
DCE = 1,2-dichloroethane-d4	76-114
NBZ = nitrobenzene-d5	35-114
FBP = 2-fluorobiphenyl	43-116
TPH = terphenyl-d14	33-141
PHL = phenol-d5	10-110
2FB = 2-fluorophenol	21-110
TBP = 2,4,6-tribromophenol	10-123
2CP = 2-chlorophenol-d4	33-110
DCB = 1,2-dichlorobenzene-d4	16-110
TCX = tetrachloro-m-xylene	60-150
DCB = decachlorobiphenyl	60-150

APPENDIX C
VALIDATED DATA

DRAFT

APPENDIX C

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Technical Memorandum No. 5, Groundwater Assessment
NAS Whiting Field, Milton, Florida

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02/23/95 WHITING F. INDUSTRIAL SITES 16:33:14
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number: Site Locator Collect Date:	90331001 WHITING WHF3-1 12-JAN-94	90331002 WHITING WHF3-1A 12-JAN-94	90330002 WHITING WHF3-1B 12-JAN-94	90330002DL WHITING WHF3-1BDL 12-JAN-94				
	VALUE QUAL UNITS	DL	VALUE QUAL UNITS	DL	VALUE QUAL UNITS	DL	VALUE QUAL UNITS	DL
CLP VOLATILES 90-SOW ug/l								
Chloromethane	10 U ug/l	10	10 U ug/l	10	250 U ug/l	250	500 U ug/l	500
Bromomethane	10 U ug/l	10	10 U ug/l	10	250 U ug/l	250	500 U ug/l	500
Vinyl chloride	10 U ug/l	10	10 U ug/l	10	250 U ug/l	250	500 U ug/l	500
Chloroethane	10 U ug/l	10	10 U ug/l	10	250 U ug/l	250	500 U ug/l	500
Methylene chloride	10 UJ ug/l	10	10 UJ ug/l	10	250 UJ ug/l	250	220 UJ ug/l	500
Acetone	10 U ug/l	10	10 U ug/l	10	380 J ug/l	250	490 UJ ug/l	500
Carbon disulfide	10 U ug/l	10	10 U ug/l	10	250 U ug/l	250	500 U ug/l	500
1,1-Dichloroethene	10 U ug/l	10	10 U ug/l	10	250 U ug/l	250	500 U ug/l	500
1,1-Dichloroethane	10 U ug/l	10	10 U ug/l	10	250 U ug/l	250	500 U ug/l	500
1,2-Dichloroethene (total)	4 J ug/l	10	3 J ug/l	10	230 J ug/l	250	240 J ug/l	500
Chloroform	10 U ug/l	10	10 U ug/l	10	250 U ug/l	250	500 U ug/l	500
1,2-Dichloroethane	10 U ug/l	10	10 U ug/l	10	250 U ug/l	250	500 U ug/l	500
2-Butanone	10 U ug/l	10	10 U ug/l	10	250 U ug/l	250	500 U ug/l	500
1,1,1-Trichloroethane	10 U ug/l	10	10 U ug/l	10	250 U ug/l	250	500 U ug/l	500
Carbon tetrachloride	10 U ug/l	10	10 U ug/l	10	250 U ug/l	250	500 U ug/l	500
Bromodichloromethane	10 U ug/l	10	10 U ug/l	10	250 U ug/l	250	500 U ug/l	500
1,2-Dichloroproppane	10 U ug/l	10	10 U ug/l	10	250 U ug/l	250	500 U ug/l	500
cis-1,3-Dichloropropene	10 U ug/l	10	10 U ug/l	10	250 U ug/l	250	500 U ug/l	500
Trichloroethene	53 ug/l	10	52 ug/l	10	74 J ug/l	250	93 J ug/l	500
Dibromochloromethane	10 U ug/l	10	10 U ug/l	10	250 U ug/l	250	500 U ug/l	500
1,1,2-Trichloroethane	10 U ug/l	10	10 U ug/l	10	250 U ug/l	250	500 U ug/l	500
Benzene	3 J ug/l	10	2 J ug/l	10	3600 ug/l	250	3900 ug/l	500
trans-1,3-Dichloropropene	10 U ug/l	10	10 U ug/l	10	250 U ug/l	250	500 U ug/l	500
Bromoform	10 U ug/l	10	10 U ug/l	10	250 U ug/l	250	500 U ug/l	500
4-Methyl-2-pentanone	10 U ug/l	10	10 U ug/l	10	250 U ug/l	250	500 U ug/l	500
2-Hexanone	10 U ug/l	10	10 U ug/l	10	250 U ug/l	250	500 U ug/l	500
Tetrachloroethene	10 U ug/l	10	10 U ug/l	10	250 U ug/l	250	500 U ug/l	500
Toluene	41 ug/l	10	39 ug/l	10	7200 ug/l	250	7200 ug/l	500
1,1,2,2-Tetrachloroethane	10 U ug/l	10	10 U ug/l	10	250 U ug/l	250	500 U ug/l	500
Chlorobenzene	10 U ug/l	10	10 U ug/l	10	250 U ug/l	250	500 U ug/l	500
Ethylbenzene	3 J ug/l	10	3 J ug/l	10	680 ug/l	250	710 ug/l	500
Styrene	10 U ug/l	10	10 U ug/l	10	250 U ug/l	250	500 U ug/l	500
Xylenes (total)	6 J ug/l	10	6 J ug/l	10	1700 ug/l	250	1700 ug/l	500

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:33:14
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90325001	Site	WHITING	Locator	WHF3-1D	Collect Date:	11-JAN-94	90333001	WHITING	90333002	WHITING	90299001	WHITING		
	VALUE	QUAL UNITS	DL		VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL		
CLP VOLATILES 90-SOW	ug/l														
Chloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromomethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Vinyl chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Methylene chloride	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acetone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	4 UJ	ug/l	10
Carbon disulfide	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethene (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Butanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,1-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Carbon tetrachloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromodichloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloropropane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
cis-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Trichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	16	ug/l	10	10 U	ug/l	10
Dibromochloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzene	10 U	ug/l	10	1 J	ug/l	10	3 J	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
trans-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromoform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methyl-2-pentanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Hexanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Tetrachloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Toluene	10 U	ug/l	10	2 J	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2-Tetrachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Ethylbenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Styrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Xylenes (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

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02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:33:14
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90334002			90337003			90325002			90353005		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF3-3			WHF3-3B			WHF3-3D			WHF3-4		
Collect Date:	14-JAN-94			18-JAN-94			11-JAN-94			20-JAN-94		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW	ug/l											
Chloromethane	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Bromomethane	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Vinyl chloride	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Chloroethane	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Methylene chloride	1 UJ	ug/l	10		2 UJ	ug/l	10		10 UJ	ug/l	10	
Acetone	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Carbon disulfide	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
1,1-Dichloroethene	10 U	ug/l	10		1 J	ug/l	10		10 U	ug/l	10	
1,1-Dichloroethane	10 U	ug/l	10		2 J	ug/l	10		10 U	ug/l	10	
1,2-Dichloroethene (total)	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Chloroform	10 U	ug/l	10		4 J	ug/l	10		10 U	ug/l	10	
1,2-Dichloroethane	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
2-Butanone	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
1,1,1-Trichloroethane	10 U	ug/l	10		4 J	ug/l	10		10 U	ug/l	10	
Carbon tetrachloride	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Bromodichloromethane	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
1,2-Dichloropropane	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
cis-1,3-Dichloropropene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Trichloroethene	2 J	ug/l	10		76	ug/l	10		10 U	ug/l	10	
Dibromochloromethane	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
1,1,2-Trichloroethane	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Benzene	10 U	ug/l	10		3 J	ug/l	10		10 U	ug/l	10	4500
trans-1,3-Dichloropropene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Bromoform	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
4-Methyl-2-pentanone	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
2-Hexanone	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Tetrachloroethene	10 U	ug/l	10		3 J	ug/l	10		10 U	ug/l	10	
Toluene	10 U	ug/l	10		2 J	ug/l	10		10 U	ug/l	10	15000
1,1,2,2-Tetrachloroethane	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Chlorobenzene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Ethylbenzene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	2800
Styrene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Xylenes (total)	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	5300

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02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:33:14
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90353005DL			90343001			90325003			90337004				
Site	WHITING			WHITING			WHITING			WHITING				
Locator	WHF3-4DL			WHF3-7B			WHF3-7D			WHF3-7C				
Collect Date:	20-JAN-94			19-JAN-94			11-JAN-94			18-JAN-94				
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL		
CLP VOLATILES 90-SOW	ug/l													
Chloromethane	1000	U	ug/l	1000	250	U	ug/l	250	2	J	ug/l	10		
Bromomethane	1000	U	ug/l	1000	250	UJ	ug/l	250	10	U	ug/l	10		
Vinyl chloride	1000	U	ug/l	1000	250	U	ug/l	250	10	U	ug/l	10		
Chloroethane	1000	U	ug/l	1000	250	U	ug/l	250	10	U	ug/l	10		
Methylene chloride	1000	U	ug/l	1000	250	U	ug/l	250	10	UJ	ug/l	10		
Acetone	1000	U	ug/l	1000	250	UJ	ug/l	250	10	U	ug/l	10		
Carbon disulfide	1000	U	ug/l	1000	250	U	ug/l	250	10	U	ug/l	10		
1,1-Dichloroethene	1000	U	ug/l	1000	250	U	ug/l	250	10	U	ug/l	10		
1,1-Dichloroethane	1000	U	ug/l	1000	250	U	ug/l	250	10	U	ug/l	10		
1,2-Dichloroethene (total)	1000	U	ug/l	1000	190	J	ug/l	250	10	U	ug/l	10		
Chloroform	1000	U	ug/l	1000	250	U	ug/l	250	10	U	ug/l	10		
1,2-Dichloroethane	1000	U	ug/l	1000	250	U	ug/l	250	10	U	ug/l	10		
2-Butanone	1000	U	ug/l	1000	250	U	ug/l	250	10	U	ug/l	10		
1,1,1-Trichloroethane	1000	U	ug/l	1000	250	U	ug/l	250	10	U	ug/l	10		
Carbon tetrachloride	1000	U	ug/l	1000	250	U	ug/l	250	10	U	ug/l	10		
Bromodichloromethane	1000	U	ug/l	1000	250	U	ug/l	250	10	U	ug/l	10		
1,2-Dichloropropane	1000	U	ug/l	1000	250	U	ug/l	250	10	U	ug/l	10		
cis-1,3-Dichloropropene	1000	U	ug/l	1000	250	U	ug/l	250	10	U	ug/l	10		
Trichloroethene	250	J	ug/l	1000	220	J	ug/l	250	1	J	ug/l	10		
Dibromochloromethane	1000	U	ug/l	1000	250	U	ug/l	250	10	U	ug/l	10		
1,1,2-Trichloroethane	1000	U	ug/l	1000	250	U	ug/l	250	10	U	ug/l	10		
Benzene	4500	ug/l	1000	4100	ug/l	250	10	U	ug/l	10	14	ug/l	10	
trans-1,3-Dichloropropene	1000	U	ug/l	1000	250	U	ug/l	250	10	U	ug/l	10		
Bromoform	1000	U	ug/l	1000	250	U	ug/l	250	10	U	ug/l	10		
4-Methyl-2-pentanone	1000	U	ug/l	1000	250	U	ug/l	250	10	U	ug/l	10		
2-Hexanone	1000	U	ug/l	1000	250	U	ug/l	250	10	U	ug/l	10		
Tetrachloroethene	1000	U	ug/l	1000	250	U	ug/l	250	10	U	ug/l	10		
Toluene	15000	ug/l	1000	1100	ug/l	250	1	J	ug/l	10	130	ug/l	10	
1,1,2,2-Tetrachloroethane	1000	U	ug/l	1000	250	U	ug/l	250	10	U	ug/l	10		
Chlorobenzene	1000	U	ug/l	1000	250	U	ug/l	250	10	U	ug/l	10		
Ethylbenzene	1500	ug/l	1000	1100	ug/l	250	10	U	ug/l	10	9	J	ug/l	10
Styrene	1000	U	ug/l	1000	250	U	ug/l	250	10	U	ug/l	10		
Xylenes (total)	3000	ug/l	1000	10	U	ug/l	10	10	U	ug/l	10	28	ug/l	10

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE D = DOUBLE INTERMEDIATE SAMPLE E = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:33:14
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90343002	Site Locator:	WHITING	Collect Date:	19-JAN-94	90256001	WHITING	01-DEC-93	90265002	WHITING	02-DEC-93	90253001	WHITING	30-NOV-93	
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
CLP VOLATILES 90-SOW ug/l															
Chloromethane	10 U	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10
Bromomethane	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Vinyl chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroethane	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Methylene chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acetone	10 UJ	ug/l	10	10 U	ug/l	10	42	ug/l	10	10 UJ	ug/l	10			
Carbon disulfide	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethene (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Butanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,1-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Carbon tetrachloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromodichloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloropropane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
cis-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Trichloroethene	10 U	ug/l	10	10 U	ug/l	10	6 J	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Dibromochloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzene	10 U	ug/l	10	10 U	ug/l	10	32	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
trans-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromoform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methyl-2-pentanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Hexanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Tetrachloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	5 J	ug/l	10			
Toluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2,2-Tetrachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Ethylbenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Styrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Xylenes (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

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02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:33:14
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90359001	Site	WHITING	Locator	WHF5-8D	Collect Date:	21-JAN-94	90257001	WHITING	90257002	WHITING	90253002	WHITING	
			WHITING		WHF5-9B		01-DEC-93		WHF5-9BA		WHF5-9D		30-NOV-93	
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	
CLP VOLATILES 90-SOW	ug/l													
Chloromethane	10 U	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l
Bromomethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l
Vinyl chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l
Chloroethane	10 U	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l
Methylene chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l
Acetone	10 UJ	ug/l	10	86	ug/l	10	87	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l
Carbon disulfide	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l
1,1-Dichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l
1,1-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l
1,2-Dichloroethene (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l
Chloroform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l
1,2-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l
2-Butanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l
1,1,1-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l
Carbon tetrachloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l
Bromodichloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l
1,2-Dichloropropane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l
cis-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l
Trichloroethene	1 J	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l
Dibromochloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l
1,1,2-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l
Benzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l
trans-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l
Bromoform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l
4-Methyl-2-pentanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l
2-Hexanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l
Tetrachloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l
Toluene	6 J	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l
1,1,2,2-Tetrachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l
Chlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l
Ethylbenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l
Styrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l
Xylenes (total)	1 J	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l

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02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:33:14
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90242001	Site	WHITING	Locator	WHF5-10B	Collect Date:	19-NOV-93	90240003	WHITING	90240001	WHITING	90240001DL	WHITING	
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
CLP VOLATILES 90-SOW	ug/l													
Chloromethane	1 J	ug/l	10	10 U	ug/l	10	1 J	ug/l	10	6 J	ug/l	50		
Bromomethane	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10	50 U	ug/l	50		
Vinyl chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50		
Chloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50		
Methylene chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50		
Acetone	10 U	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	50 UJ	ug/l	50		
Carbon disulfide	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50		
1,1-Dichloroethene	10 U	ug/l	10	10 UJ	ug/l	10	18	ug/l	10	18 J	ug/l	50		
1,1-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50		
1,2-Dichloroethene (total)	10 U	ug/l	10	10 U	ug/l	10	5 J	ug/l	10	50 U	ug/l	50		
Chloroform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50		
1,2-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50		
2-Butanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50		
1,1,1-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	4 J	ug/l	10	50 U	ug/l	50		
Carbon tetrachloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50		
Bromodichloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50		
1,2-Dichloropropane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50		
cis-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50		
Trichloroethene	10 U	ug/l	10	1 J	ug/l	10	500	ug/l	10	500	ug/l	50		
Dibromochloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50		
1,1,2-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50		
Benzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50		
trans-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50		
Bromoform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50		
4-Methyl-2-pentanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50		
2-Hexanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50		
Tetrachloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50		
Toluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50		
1,1,2,2-Tetrachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50		
Chlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50		
Ethylbenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50		
Styrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50		
Xylenes (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50		

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02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:33:14
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90236004			90240002			90240002DL			90265003		
Site Locator	WHITING WHF6-1D			WHITING WHF6-3			WHITING WHF6-3DL			WHITING WHF7-1		
Collect Date:	17-NOV-93			18-NOV-93			18-NOV-93			02-DEC-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW	ug/l											
Chloromethane	1 J	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	10 UJ	ug/l	10
Bromomethane	10 UJ	ug/l	10	10 UJ	ug/l	10	50 U	ug/l	50	10 UJ	ug/l	10
Vinyl chloride	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	10 UJ	ug/l	10
Chloroethane	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	10 UJ	ug/l	10
Methylene chloride	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	10 UJ	ug/l	10
Acetone	10 UJ	ug/l	10	10 UJ	ug/l	10	50 UJ	ug/l	50	91 J	ug/l	10
Carbon disulfide	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	10 UJ	ug/l	10
1,1-Dichloroethene	10 U	ug/l	10	18	ug/l	10	23 J	ug/l	50	10 UJ	ug/l	10
1,1-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	10 UJ	ug/l	10
1,2-Dichloroethene (total)	10 U	ug/l	10	7 J	ug/l	10	6 J	ug/l	50	17 J	ug/l	10
Chloroform	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	10 UJ	ug/l	10
1,2-Dichloroethane	10 U	ug/l	10	2 J	ug/l	10	50 U	ug/l	50	10 UJ	ug/l	10
2-Butanone	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	10 UJ	ug/l	10
1,1,1-Trichloroethane	10 U	ug/l	10	10	ug/l	10	9 J	ug/l	50	10 UJ	ug/l	10
Carbon tetrachloride	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	10 UJ	ug/l	10
Bromodichloromethane	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	10 UJ	ug/l	10
1,2-Dichloropropane	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	10 UJ	ug/l	10
cis-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	10 UJ	ug/l	10
Trichloroethene	10 U	ug/l	10	440	ug/l	10	440	ug/l	50	17 J	ug/l	10
Dibromochloromethane	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	10 UJ	ug/l	10
1,1,2-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	10 UJ	ug/l	10
Benzene	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	6700	ug/l	10
trans-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	10 UJ	ug/l	10
Bromoform	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	10 UJ	ug/l	10
4-Methyl-2-pentanone	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	10 UJ	ug/l	10
2-Hexanone	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	10 UJ	ug/l	10
Tetrachloroethene	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	10 UJ	ug/l	10
Toluene	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	47000	ug/l	10
1,1,2,2-Tetrachloroethane	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	10 UJ	ug/l	10
Chlorobenzene	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	10 UJ	ug/l	10
Ethylbenzene	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	1800	ug/l	10
Styrene	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	10 UJ	ug/l	10
Xylenes (total)	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	3500	ug/l	10

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02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:33:14
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90265003DL			90285001			90278002			90280002		
Site Locator	WHITING	WHF7-1DL	WHITING	WHF8-1	WHITING	WHF29-1	WHITING	WHF29-2	WHITING	WHF29-2	WHITING	
Collect Date:	02-DEC-93		09-DEC-93		07-DEC-93		08-DEC-93		08-DEC-93			
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
CLP VOLATILES 90-SOW	ug/l											
Chloromethane	4000	UJ	ug/l	4000	10	UJ	ug/l	10	10	UJ	ug/l	10
Bromomethane	4000	U	ug/l	4000	10	U	ug/l	10	10	U	ug/l	10
Vinyl chloride	4000	U	ug/l	4000	10	U	ug/l	10	10	U	ug/l	10
Chloroethane	4000	U	ug/l	4000	10	U	ug/l	10	10	U	ug/l	10
Methylene chloride	4000	U	ug/l	4000	10	UJ	ug/l	10	10	U	ug/l	10
Acetone	4000	U	ug/l	4000	10	J	ug/l	10	10	UJ	ug/l	10
Carbon disulfide	4000	U	ug/l	4000	10	U	ug/l	10	10	U	ug/l	10
1,1-Dichloroethene	4000	U	ug/l	4000	10	U	ug/l	10	10	U	ug/l	10
1,1-Dichloroethane	4000	U	ug/l	4000	10	U	ug/l	10	10	U	ug/l	10
1,2-Dichloroethene (total)	4000	U	ug/l	4000	10	U	ug/l	10	10	U	ug/l	10
Chloroform	4000	U	ug/l	4000	10	U	ug/l	10	10	U	ug/l	10
1,2-Dichloroethane	4000	U	ug/l	4000	10	U	ug/l	10	10	U	ug/l	10
2-Butanone	4000	U	ug/l	4000	10	U	ug/l	10	10	U	ug/l	10
1,1,1-Trichloroethane	4000	U	ug/l	4000	10	U	ug/l	10	10	U	ug/l	10
Carbon tetrachloride	4000	U	ug/l	4000	10	U	ug/l	10	10	U	ug/l	10
Bromodichloromethane	4000	U	ug/l	4000	10	U	ug/l	10	10	U	ug/l	10
1,2-Dichloropropane	4000	U	ug/l	4000	10	U	ug/l	10	10	U	ug/l	10
cis-1,3-Dichloropropene	4000	U	ug/l	4000	10	U	ug/l	10	10	U	ug/l	10
Trichloroethene	4000	U	ug/l	4000	10	U	ug/l	10	10	U	ug/l	10
Dibromochloromethane	4000	U	ug/l	4000	10	U	ug/l	10	10	U	ug/l	10
1,1,2-Trichloroethane	4000	U	ug/l	4000	10	U	ug/l	10	10	U	ug/l	10
Benzene	6700	D	ug/l	4000	10	U	ug/l	10	10	U	ug/l	10
trans-1,3-Dichloropropene	4000	U	ug/l	4000	10	U	ug/l	10	10	U	ug/l	10
Bromoform	4000	U	ug/l	4000	10	UJ	ug/l	10	10	UJ	ug/l	10
4-Methyl-2-pentanone	4000	U	ug/l	4000	10	U	ug/l	10	10	U	ug/l	10
2-Hexanone	4000	U	ug/l	4000	10	U	ug/l	10	10	U	ug/l	10
Tetrachloroethene	4000	U	ug/l	4000	10	U	ug/l	10	10	U	ug/l	10
Toluene	47000	D	ug/l	4000	10	U	ug/l	10	10	U	ug/l	10
1,1,2,2-Tetrachloroethane	4000	U	ug/l	4000	10	U	ug/l	10	10	U	ug/l	10
Chlorobenzene	4000	U	ug/l	4000	10	U	ug/l	10	10	U	ug/l	10
Ethylbenzene	1800	DJ	ug/l	4000	10	U	ug/l	10	10	U	ug/l	10
Styrene	4000	U	ug/l	4000	10	U	ug/l	10	10	U	ug/l	10
Xylenes (total)	3500	DJ	ug/l	4000	10	U	ug/l	10	10	U	ug/l	10

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02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:33:14
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90280003			90280004			90280005			90278001		
Site Locator	WHITING			WHITING			WHITING			WHITING		
Collect Date:	08-DEC-93			08-DEC-93			08-DEC-93			07-DEC-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW	ug/l											
Chloromethane	10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10
Bromomethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Vinyl chloride	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Methylene chloride	10	UJ	ug/l	10	10	UJ	ug/l	10	10	U	ug/l	10
Acetone	33	J	ug/l	10	24	J	ug/l	10	10	UJ	ug/l	10
Carbon disulfide	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,1-Dichloroethene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,1-Dichloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2-Dichloroethene (total)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chloroform	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2-Dichloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Butanone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,1,1-Trichloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Carbon tetrachloride	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Bromodichloromethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2-Dichloropropane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
cis-1,3-Dichloropropene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Trichloroethene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dibromochloromethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,1,2-Trichloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
trans-1,3-Dichloropropene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Bromoform	10	UJ	ug/l	10	10	UJ	ug/l	10	10	U	ug/l	10
4-Methyl-2-pentanone	64		ug/l	10	65		ug/l	10	10	U	ug/l	10
2-Hexanone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Tetrachloroethene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Toluene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,1,2,2-Tetrachloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Ethylbenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Styrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Xylenes (total)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10

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02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:33:14
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90285003			90285003DL			90286002			90286002DL		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF30-2			WHF30-2DL			WHF30-3			WHF30-3DL		
Collect Date:	09-DEC-93			09-DEC-93			10-DEC-93			10-DEC-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW	ug/l											
Chloromethane	10	UJ	ug/l	10	50	UJ	ug/l	50	10	UJ	ug/l	10
Bromomethane	10	U	ug/l	10	50	U	ug/l	50	10	U	ug/l	50
Vinyl chloride	10	U	ug/l	10	50	U	ug/l	50	10	U	ug/l	50
Chloroethane	10	U	ug/l	10	50	U	ug/l	50	10	U	ug/l	50
Methylene chloride	10	UJ	ug/l	10	50	UJ	ug/l	50	10	U	ug/l	50
Acetone	10	UJ	ug/l	10	50	UJ	ug/l	50	10	UJ	ug/l	50
Carbon disulfide	10	U	ug/l	10	50	U	ug/l	50	10	U	ug/l	50
1,1-Dichloroethene	10	U	ug/l	10	50	U	ug/l	50	10	U	ug/l	50
1,1-Dichloroethane	10	U	ug/l	10	50	U	ug/l	50	10	U	ug/l	50
1,2-Dichloroethene (total)	22		ug/l	10	23	J	ug/l	50	57		ug/l	10
Chloroform	10	U	ug/l	10	50	U	ug/l	50	4	J	ug/l	10
1,2-Dichloroethane	10	U	ug/l	10	50	U	ug/l	50	10	U	ug/l	50
2-Butanone	10	U	ug/l	10	50	U	ug/l	50	10	U	ug/l	50
1,1,1-Trichloroethane	10	U	ug/l	10	50	U	ug/l	50	10	U	ug/l	50
Carbon tetrachloride	10	U	ug/l	10	50	U	ug/l	50	10	U	ug/l	50
Bromodichloromethane	10	U	ug/l	10	50	U	ug/l	50	10	U	ug/l	50
1,2-Dichloropropane	10	U	ug/l	10	50	U	ug/l	50	10	U	ug/l	50
cis-1,3-Dichloropropene	10	U	ug/l	10	50	U	ug/l	50	10	U	ug/l	50
Trichloroethene	620		ug/l	10	620	D	ug/l	50	560		ug/l	10
Dibromochloromethane	10	U	ug/l	10	50	U	ug/l	50	10	U	ug/l	50
1,1,2-Trichloroethane	10	U	ug/l	10	50	U	ug/l	50	10	U	ug/l	50
Benzene	10	U	ug/l	10	50	U	ug/l	50	10	U	ug/l	50
trans-1,3-Dichloropropene	10	U	ug/l	10	50	U	ug/l	50	10	U	ug/l	50
Bromoform	10	UJ	ug/l	10	50	UJ	ug/l	50	10	UJ	ug/l	50
4-Methyl-2-pentanone	10	U	ug/l	10	50	U	ug/l	50	10	U	ug/l	50
2-Hexanone	10	U	ug/l	10	50	U	ug/l	50	10	U	ug/l	50
Tetrachloroethene	10	U	ug/l	10	50	U	ug/l	50	10	U	ug/l	50
Toluene	10	U	ug/l	10	50	U	ug/l	50	10	U	ug/l	50
1,1,2,2-Tetrachloroethane	10	U	ug/l	10	50	U	ug/l	50	10	U	ug/l	50
Chlorobenzene	10	U	ug/l	10	50	U	ug/l	50	10	U	ug/l	50
Ethylbenzene	10	U	ug/l	10	50	U	ug/l	50	10	U	ug/l	50
Styrene	10	U	ug/l	10	50	U	ug/l	50	10	U	ug/l	50
Xylenes (total)	10	U	ug/l	10	50	U	ug/l	50	10	U	ug/l	50

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02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:33:14
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90289002			90285002			90285002DL			90353003		
Site Locator	WHITING	WHITING	WHITING	WHITING	WHITING	WHITING	WHITING	WHITING	WHITING	WHITING	WHITING	WHITING
Collect Date:	WHF30-4	WHF30-5	WHF30-5DL	WHF30-5DL	WHF32-1	WHF32-1	20-JAN-94	20-JAN-94	20-JAN-94	20-JAN-94	20-JAN-94	20-JAN-94
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW	ug/l											
Chloromethane	10 UJ	ug/l	10	10 UJ	ug/l	10	50 UJ	ug/l	50	83 U	ug/l	83
Bromomethane	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	83 U	ug/l	83
Vinyl chloride	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	83 U	ug/l	83
Chloroethane	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	83 U	ug/l	83
Methylene chloride	10 U	ug/l	10	10 UJ	ug/l	10	50 UJ	ug/l	50	83 U	ug/l	83
Acetone	10 U	ug/l	10	10 UJ	ug/l	10	50 UJ	ug/l	50	83 UJ	ug/l	83
Carbon disulfide	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	83 U	ug/l	83
1,1-Dichloroethene	10 U	ug/l	10	24	ug/l	10	27 J	ug/l	50	83 U	ug/l	83
1,1-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	83 U	ug/l	83
1,2-Dichloroethene (total)	10 U	ug/l	10	5 J	ug/l	10	50 U	ug/l	50	110	ug/l	83
Chloroform	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	83 U	ug/l	83
1,2-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	83 U	ug/l	83
2-Butanone	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	83 U	ug/l	83
1,1,1-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	83 U	ug/l	83
Carbon tetrachloride	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	83 U	ug/l	83
Bromodichloromethane	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	83 U	ug/l	83
1,2-Dichloropropane	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	83 U	ug/l	83
cis-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	83 U	ug/l	83
Trichloroethene	71	ug/l	10	360	ug/l	10	360 D	ug/l	50	95	ug/l	83
Dibromochloromethane	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	83 U	ug/l	83
1,1,2-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	83 U	ug/l	83
Benzene	48	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	760	ug/l	83
trans-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	83 U	ug/l	83
Bromoform	10 UJ	ug/l	10	10 UJ	ug/l	10	50 UJ	ug/l	50	83 U	ug/l	83
4-Methyl-2-pentanone	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	83 U	ug/l	83
2-Hexanone	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	83 U	ug/l	83
Tetrachloroethene	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	83 U	ug/l	83
Toluene	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	1600	ug/l	83
1,1,2,2-Tetrachloroethane	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	83 U	ug/l	83
Chlorobenzene	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	83 U	ug/l	83
Ethylbenzene	16	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	970	ug/l	83
Styrene	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	83 U	ug/l	83
Xylenes (total)	70	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	1700	ug/l	83

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02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:33:14
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90353004	Site	WHITING	Locator	WHF32-1A	Collect Date:	20-JAN-94	90353004DL	WHITING	WHF32-1ADL	20-JAN-94	90343003	WHITING	WHF32-2	19-JAN-94	90343005	WHITING	WHF32-3	19-JAN-94						
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL							
CLP VOLATILES 90-SOW ug/l																									
Chloromethane	10 U	ug/l	10	100 U	ug/l	100	250 U	ug/l	250	50 U	ug/l	50	Bromomethane	10 U	ug/l	10	100 U	ug/l	100	250 UJ	ug/l	250	50 U	ug/l	50
Vinyl chloride	10 U	ug/l	10	100 U	ug/l	100	250 U	ug/l	250	50 U	ug/l	50	Chloroethane	10 U	ug/l	10	100 U	ug/l	100	250 U	ug/l	250	50 U	ug/l	50
Methylene chloride	10 U	ug/l	10	100 U	ug/l	100	250 U	ug/l	250	50 U	ug/l	50	Acetone	10 UJ	ug/l	10	100 UJ	ug/l	100	250 UJ	ug/l	250	50 UJ	ug/l	50
Carbon disulfide	10 U	ug/l	10	100 U	ug/l	100	250 U	ug/l	250	50 U	ug/l	50	1,1-Dichloroethene	10 U	ug/l	10	100 U	ug/l	100	250 U	ug/l	250	50 U	ug/l	50
1,1-Dichloroethane	10 U	ug/l	10	100 U	ug/l	100	250 U	ug/l	250	50 U	ug/l	50	1,2-Dichloroethene (total)	110	ug/l	10	96 J	ug/l	100	1000	ug/l	250	630	ug/l	50
Chloroform	10 U	ug/l	10	100 U	ug/l	100	250 U	ug/l	250	50 U	ug/l	50	1,2-Dichloroethane	10 U	ug/l	10	100 U	ug/l	100	250 U	ug/l	250	50 U	ug/l	50
2-Butanone	10 U	ug/l	10	100 U	ug/l	100	250 U	ug/l	250	50 U	ug/l	50	2-Butanone	10 U	ug/l	10	100 U	ug/l	100	250 U	ug/l	250	50 U	ug/l	50
1,1,1-Trichloroethane	10 U	ug/l	10	100 U	ug/l	100	250 U	ug/l	250	50 U	ug/l	50	Carbon tetrachloride	10 U	ug/l	10	100 U	ug/l	100	250 U	ug/l	250	50 U	ug/l	50
Bromodichloromethane	10 U	ug/l	10	100 U	ug/l	100	250 U	ug/l	250	50 U	ug/l	50	1,2-Dichloropropane	10 U	ug/l	10	100 U	ug/l	100	250 U	ug/l	250	50 U	ug/l	50
cis-1,3-Dichloropropene	10 U	ug/l	10	100 U	ug/l	100	250 U	ug/l	250	50 U	ug/l	50	Trichloroethene	96	ug/l	10	82 J	ug/l	100	1600	ug/l	250	590	ug/l	50
Dibromochloromethane	10 U	ug/l	10	100 U	ug/l	100	250 U	ug/l	250	50 U	ug/l	50	1,1,2-Trichloroethane	10 U	ug/l	10	100 U	ug/l	100	250 U	ug/l	250	50 U	ug/l	50
Benzene	670	ug/l	10	670	ug/l	100	340	ug/l	250	660	ug/l	50	trans-1,3-Dichloropropene	10 U	ug/l	10	100 U	ug/l	100	250 U	ug/l	250	50 U	ug/l	50
Bromoform	10 U	ug/l	10	100 U	ug/l	100	250 U	ug/l	250	50 U	ug/l	50	4-Methyl-2-pentanone	10 U	ug/l	10	100 U	ug/l	100	250 U	ug/l	250	50 U	ug/l	50
2-Hexanone	10 U	ug/l	10	100 U	ug/l	100	250 U	ug/l	250	50 U	ug/l	50	Tetrachloroethene	10 U	ug/l	10	100 U	ug/l	100	250 U	ug/l	250	50 U	ug/l	50
Toluene	1400	ug/l	10	1400	ug/l	100	66 J	ug/l	250	25 J	ug/l	50	1,1,2,2-Tetrachloroethane	10 U	ug/l	10	100 U	ug/l	100	250 U	ug/l	250	50 U	ug/l	50
Chlorobenzene	10 U	ug/l	10	100 U	ug/l	100	250 U	ug/l	250	50 U	ug/l	50	Ethylbenzene	820	ug/l	10	820	ug/l	100	33 J	ug/l	250	210	ug/l	50
Styrene	10 U	ug/l	10	100 U	ug/l	100	250 U	ug/l	250	50 U	ug/l	50	Xylenes (total)	1500	ug/l	10	1500	ug/l	100	190 J	ug/l	250	460	ug/l	50

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02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:33:14
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90353006	Site	WHITING	Locator	WHF32-4	Collect Date:	20-JAN-94	VALUE	QUAL UNITS	DL										
CLP VOLATILES 90-SOW	ug/l																			
Chloromethane		1200	U	ug/l	1200		10	U	ug/l	10		10	U	ug/l	10		10	U	ug/l	10
Bromomethane		1200	U	ug/l	1200		10	UJ	ug/l	10		10	U	ug/l	10		10	U	ug/l	10
Vinyl chloride		1200	U	ug/l	1200		10	U	ug/l	10		10	U	ug/l	10		10	U	ug/l	10
Chloroethane		1200	U	ug/l	1200		10	U	ug/l	10		10	U	ug/l	10		10	U	ug/l	10
Methylene chloride		1200	U	ug/l	1200		10	U	ug/l	10		10	UJ	ug/l	10		10	UJ	ug/l	10
Acetone		1200	U	ug/l	1200		10	UJ	ug/l	10		10	U	ug/l	10		10	U	ug/l	10
Carbon disulfide		1200	U	ug/l	1200		10	U	ug/l	10		10	U	ug/l	10		10	U	ug/l	10
1,1-Dichloroethene		1200	U	ug/l	1200		10	U	ug/l	10		2	J	ug/l	10		2	J	ug/l	10
1,1-Dichloroethane		1200	U	ug/l	1200		10	U	ug/l	10		10	U	ug/l	10		10	U	ug/l	10
1,2-Dichloroethene (total)		1200	U	ug/l	1200		7	J	ug/l	10		2	J	ug/l	10		2	J	ug/l	10
Chloroform		1200	U	ug/l	1200		10	U	ug/l	10		10	U	ug/l	10		10	U	ug/l	10
1,2-Dichloroethane		1200	U	ug/l	1200		10	U	ug/l	10		2	J	ug/l	10		2	J	ug/l	10
2-Butanone		1200	U	ug/l	1200		10	U	ug/l	10		10	U	ug/l	10		10	U	ug/l	10
1,1,1-Trichloroethane		1200	U	ug/l	1200		10	U	ug/l	10		10	U	ug/l	10		10	U	ug/l	10
Carbon tetrachloride		1200	U	ug/l	1200		10	U	ug/l	10		10	U	ug/l	10		10	U	ug/l	10
Bromodichloromethane		1200	U	ug/l	1200		10	U	ug/l	10		10	U	ug/l	10		10	U	ug/l	10
1,2-Dichloropropane		1200	U	ug/l	1200		10	U	ug/l	10		10	U	ug/l	10		10	U	ug/l	10
cis-1,3-Dichloropropene		1200	U	ug/l	1200		10	U	ug/l	10		10	U	ug/l	10		10	U	ug/l	10
Trichloroethene		1200	U	ug/l	1200		10		ug/l	10		120		ug/l	10		120		ug/l	10
Dibromochloromethane		1200	U	ug/l	1200		10	U	ug/l	10		10	U	ug/l	10		10	U	ug/l	10
1,1,2-Trichloroethane		1200	U	ug/l	1200		10	U	ug/l	10		10	U	ug/l	10		10	U	ug/l	10
Benzene		1900	ug/l	1200	170							10	U	ug/l	10		10	U	ug/l	10
trans-1,3-Dichloropropene		1200	U	ug/l	1200		10	U	ug/l	10		10	U	ug/l	10		10	U	ug/l	10
Bromoform		1200	U	ug/l	1200		10	U	ug/l	10		10	U	ug/l	10		10	U	ug/l	10
4-Methyl-2-pentanone		1200	U	ug/l	1200		10	U	ug/l	10		10	U	ug/l	10		10	U	ug/l	10
2-Hexanone		1200	U	ug/l	1200		10	U	ug/l	10		10	U	ug/l	10		10	U	ug/l	10
Tetrachloroethene		1200	U	ug/l	1200		10	U	ug/l	10		10	U	ug/l	10		10	U	ug/l	10
Toluene		16000	ug/l	1200	10	U						10	U	ug/l	10		10	U	ug/l	10
1,1,2,2-Tetrachloroethane		1200	U	ug/l	1200		10	U	ug/l	10		10	U	ug/l	10		10	U	ug/l	10
Chlorobenzene		1200	U	ug/l	1200		10	U	ug/l	10		10	U	ug/l	10		10	U	ug/l	10
Ethylbenzene		1800	ug/l	1200	14							10	U	ug/l	10		10	U	ug/l	10
Styrene		1200	U	ug/l	1200		10	U	ug/l	10		10	U	ug/l	10		10	U	ug/l	10
Xylenes (total)		6400	ug/l	1200	57							10	U	ug/l	10		10	U	ug/l	10

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02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:33:14
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90291002			90291002DL			90320002			90320002DL			
Site Locator	WHITING	WHITING	WHITING	WHF33-2	WHF33-2DL	WHF33-3	14-DEC-93	14-DEC-93	10-JAN-94	WHITING	WHF33-3DL	10-JAN-94	
Collect Date:	14-DEC-93	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW	ug/l												
Chloromethane	1 J	ug/l	10	20 U	ug/l	20	3 J	ug/l	10	25 U	ug/l	25	
Bromomethane	10 UJ	ug/l	10	20 UJ	ug/l	20	10 U	ug/l	10	25 U	ug/l	25	
Vinyl chloride	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10	25 U	ug/l	25	
Chloroethane	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10	25 U	ug/l	25	
Methylene chloride	10 U	ug/l	10	20 U	ug/l	20	10 UJ	ug/l	10	8 UJ	ug/l	25	
Acetone	10 UJ	ug/l	10	20 UJ	ug/l	20	10 U	ug/l	10	25 U	ug/l	25	
Carbon disulfide	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10	25 U	ug/l	25	
1,1-Dichloroethene	3 J	ug/l	10	3 J	ug/l	20	8 J	ug/l	10	10 J	ug/l	25	
1,1-Dichloroethane	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10	25 U	ug/l	25	
1,2-Dichloroethene (total)	1 J	ug/l	10	20 U	ug/l	20	5 J	ug/l	10	6 J	ug/l	25	
Chloroform	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10	25 U	ug/l	25	
1,2-Dichloroethane	10 U	ug/l	10	20 U	ug/l	20	3 J	ug/l	10	4 J	ug/l	25	
2-Butanone	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10	25 U	ug/l	25	
1,1,1-Trichloroethane	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10	25 U	ug/l	25	
Carbon tetrachloride	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10	25 U	ug/l	25	
Bromodichloromethane	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10	25 U	ug/l	25	
1,2-Dichloropropane	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10	25 U	ug/l	25	
cis-1,3-Dichloropropene	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10	25 U	ug/l	25	
Trichloroethene	190	ug/l	10	190	ug/l	20	470	ug/l	10	470	ug/l	25	
Dibromochloromethane	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10	25 U	ug/l	25	
1,1,2-Trichloroethane	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10	25 U	ug/l	25	
Benzene	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10	25 U	ug/l	25	
trans-1,3-Dichloropropene	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10	25 U	ug/l	25	
Bromoform	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10	25 U	ug/l	25	
4-Methyl-2-pentanone	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10	25 U	ug/l	25	
2-Hexanone	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10	25 U	ug/l	25	
Tetrachloroethene	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10	25 U	ug/l	25	
Toluene	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10	25 U	ug/l	25	
1,1,2,2-Tetrachloroethane	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10	25 U	ug/l	25	
Chlorobenzene	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10	25 U	ug/l	25	
Ethylbenzene	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10	25 U	ug/l	25	
Styrene	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10	25 U	ug/l	25	
Xylenes (total)	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10	25 U	ug/l	25	

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02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:33:14
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90291003	90291001
Site	WHITING	WHITING
Locator	WHF33-4	WHF33-5
Collect Date:	14-DEC-93	14-DEC-93

	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
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CLP VOLATILES 90-SOW

ug/l

Chloromethane	10 U	ug/l	10	10 U	ug/l	10
Bromomethane	10 UJ	ug/l	10	10 UJ	ug/l	10
Vinyl chloride	10 U	ug/l	10	10 U	ug/l	10
Chloroethane	10 U	ug/l	10	10 U	ug/l	10
Methylene chloride	10 U	ug/l	10	10 U	ug/l	10
Acetone	10 UJ	ug/l	10	10 UJ	ug/l	10
Carbon disulfide	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethene	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethene (total)	10 U	ug/l	10	10 U	ug/l	10
Chloroform	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10
2-Butanone	10 U	ug/l	10	10 U	ug/l	10
1,1,1-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10
Carbon tetrachloride	10 U	ug/l	10	10 U	ug/l	10
Bromodichloromethane	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloropropane	10 U	ug/l	10	10 U	ug/l	10
cis-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10
Trichloroethene	12	ug/l	10	10 U	ug/l	10
Dibromochloromethane	10 U	ug/l	10	10 U	ug/l	10
1,1,2-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10
Benzene	10 U	ug/l	10	10 U	ug/l	10
trans-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10
Bromoform	10 U	ug/l	10	10 U	ug/l	10
4-Methyl-2-pentanone	10 U	ug/l	10	10 U	ug/l	10
2-Hexanone	10 U	ug/l	10	10 U	ug/l	10
Tetrachloroethene	10 U	ug/l	10	10 U	ug/l	10
Toluene	10 U	ug/l	10	10 U	ug/l	10
1,1,2,2-Tetrachloroethane	10 U	ug/l	10	10 U	ug/l	10
Chlorobenzene	10 U	ug/l	10	10 U	ug/l	10
Ethylbenzene	10 U	ug/l	10	10 U	ug/l	10
Styrene	10 U	ug/l	10	10 U	ug/l	10
Xylenes (total)	10 U	ug/l	10	10 U	ug/l	10

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02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:54:16
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90331001			90331002			90330002			90325001		
Site	WHITING			WHITING	WHITING			WHITING	WHITING			
Locator	WHF3-1			WHF3-1A	WHF3-1B			WHF3-1D	WHF3-1D			
Collect Date:	12-JAN-94			12-JAN-94	12-JAN-94			12-JAN-94	11-JAN-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW	ug/l											
Phenol	10	UJ	ug/l	10	10	UJ	ug/l	10	27	J	ug/l	10
bis(2-Chloroethyl) ether	10	UJ	ug/l	10	10	UJ	ug/l	10	10	U	ug/l	10
2-Chlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,3-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,4-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Methylphenol	10	U	ug/l	10	10	U	ug/l	10	35	J	ug/l	10
2,2-oxybis(1-Chloropropane)	10	UJ	ug/l	10	10	UJ	ug/l	10	10	U	ug/l	10
4-Methylphenol	10	U	ug/l	10	10	U	ug/l	10	20	J	ug/l	10
N-Nitroso-di-n-propylamine	10	UJ	ug/l	10	10	UJ	ug/l	10	10	U	ug/l	10
Hexachloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Nitrobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Isophorone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Nitrophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dimethylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Chloroethoxy) methane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2,4-Trichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Naphthalene	10	U	ug/l	10	10	U	ug/l	10	4	J	ug/l	10
4-Chloroaniline	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobutadiene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chloro-3-methylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Methylnaphthalene	10	U	ug/l	10	10	U	ug/l	10	1	J	ug/l	10
Hexachlorocyclopentadiene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4,6-Trichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4,5-Trichlorophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
2-Chloronaphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Dimethylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Acenaphthylene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,6-Dinitrotoluene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Acenaphthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
4-Nitrophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Dibenzofuran	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrotoluene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Diethylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chlorophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Fluorene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
4,6-Dinitro-2-methylphenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
N-Nitrosodiphenylamine (1)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Bromophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pentachlorophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Phenanthrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Carbazole	10	U	ug/l	10	10	U	ug/l	10	2	J	ug/l	10
Di-n-butylphthalate	10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10

02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:54:16
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90331001			90331002			90330002			90325001		
Site Locator	WHITING WHF3-1			WHITING WHF3-1A			WHITING WHF3-1B			WHITING WHF3-1D		
Collect Date:	12-JAN-94			12-JAN-94			12-JAN-94			11-JAN-94		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Fluoranthene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Pyrene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Butylbenzylphthalate	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
3,3-Dichlorobenzidine	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Benzo (a) anthracene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Chrysene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
bis(2-Ethylhexyl) phthalate	490 J	ug/l		10	10 UJ	ug/l		10	14 UJ	ug/l		10
Di-n-octylphthalate	10 UJ	ug/l		10	10 UJ	ug/l		10	10 UJ	ug/l		10
Benzo (b) fluoranthene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Benzo (k) fluoranthene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Benzo (a) pyrene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Indeno (1,2,3-cd) pyrene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Dibenz (a,h) anthracene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Benzo (g,h,i) perylene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10

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02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:54:16
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90331001DL			90333001			90333002			90299001		
Site Locator	WHITING			WHITING			WHITING			WHITING		
Collect Date:	WHF3-1DL			WHF3-2			WHF3-2B			WHF3-2D		
	12-JAN-94			13-JAN-94			13-JAN-94			16-DEC-93		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP SEMIVOLATILES 90-SOW ug/l

Phenol	100	U	ug/l	100	10	U	ug/l	10	10	U	ug/l	10
bis(2-Chloroethyl) ether	100	UJ	ug/l	100	10	UJ	ug/l	10	10	UJ	ug/l	10
2-Chlorophenol	100	U	ug/l	100	10	U	ug/l	10	10	U	ug/l	10
1,3-Dichlorobenzene	100	U	ug/l	100	10	U	ug/l	10	10	U	ug/l	10
1,4-Dichlorobenzene	100	U	ug/l	100	10	U	ug/l	10	10	U	ug/l	10
1,2-Dichlorobenzene	100	U	ug/l	100	10	U	ug/l	10	10	U	ug/l	10
2-Methylphenol	100	U	ug/l	100	10	U	ug/l	10	10	U	ug/l	10
2,2-oxybis(1-Chloropropane)	100	UJ	ug/l	100	10	UJ	ug/l	10	10	UJ	ug/l	10
4-Methylphenol	100	U	ug/l	100	10	U	ug/l	10	10	U	ug/l	10
N-Nitroso-di-n-propylamine	100	U	ug/l	100	10	U	ug/l	10	10	U	ug/l	10
Hexachloroethane	100	U	ug/l	100	10	U	ug/l	10	10	U	ug/l	10
Nitrobenzene	100	U	ug/l	100	10	U	ug/l	10	10	U	ug/l	10
Isophorone	100	U	ug/l	100	10	U	ug/l	10	10	U	ug/l	10
2-Nitrophenol	100	U	ug/l	100	10	U	ug/l	10	10	U	ug/l	10
2,4-Dimethylphenol	100	U	ug/l	100	10	U	ug/l	10	10	U	ug/l	10
bis(2-Chloroethoxy) methane	100	U	ug/l	100	10	U	ug/l	10	10	U	ug/l	10
2,4-Dichlorophenol	100	U	ug/l	100	10	U	ug/l	10	10	U	ug/l	10
1,2,4-Trichlorobenzene	100	U	ug/l	100	10	U	ug/l	10	10	U	ug/l	10
Naphthalene	100	U	ug/l	100	10	U	ug/l	10	10	U	ug/l	10
4-Chloroaniline	100	U	ug/l	100	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobutadiene	100	U	ug/l	100	10	U	ug/l	10	10	U	ug/l	10
4-Chloro-3-methylphenol	100	U	ug/l	100	10	U	ug/l	10	10	U	ug/l	10
2-Methylnaphthalene	100	U	ug/l	100	10	U	ug/l	10	10	U	ug/l	10
Hexachlorocyclopentadiene	100	U	ug/l	100	10	U	ug/l	10	10	U	ug/l	10
2,4,6-Trichlorophenol	100	U	ug/l	100	10	U	ug/l	10	10	U	ug/l	10
2,4,5-Trichlorophenol	250	U	ug/l	250	25	U	ug/l	25	25	U	ug/l	25
2-chloronaphthalene	100	U	ug/l	100	10	U	ug/l	10	10	U	ug/l	10
2-Nitroaniline	250	U	ug/l	250	25	U	ug/l	25	25	U	ug/l	25
Dimethylphthalate	100	U	ug/l	100	10	U	ug/l	10	10	U	ug/l	10
Acenaphthylene	100	U	ug/l	100	10	U	ug/l	10	10	U	ug/l	10
2,6-Dinitrotoluene	100	U	ug/l	100	10	U	ug/l	10	10	U	ug/l	10
3-Nitroaniline	250	U	ug/l	250	25	U	ug/l	25	25	U	ug/l	25
Acenaphthene	100	U	ug/l	100	10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrophenol	250	UJ	ug/l	250	25	UJ	ug/l	25	25	UJ	ug/l	25
4-Nitrophenol	250	UJ	ug/l	250	25	UJ	ug/l	25	25	UJ	ug/l	25
Dibenzofuran	100	U	ug/l	100	10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrotoluene	100	U	ug/l	100	10	U	ug/l	10	10	U	ug/l	10
Diethylphthalate	100	U	ug/l	100	10	U	ug/l	10	10	U	ug/l	10
4-Chlorophenyl-phenylether	100	U	ug/l	100	10	U	ug/l	10	10	U	ug/l	10
Fluorene	100	U	ug/l	100	10	U	ug/l	10	10	U	ug/l	10

02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:54:16
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90331001DL			90333001			90333002			90299001		
Site Locator	WHITING	WHITING	WHITING	WHITING	WHITING	WHITING	WHITING	WHITING	WHITING	WHITING	WHITING	WHITING
Collect Date:	WHF3-1DL	WHF3-2	WHF3-2B	WHF3-2D	WHF3-2	WHF3-2B	WHF3-2D	WHF3-2	WHF3-2D	WHF3-2D	WHF3-2D	WHF3-2D
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
4-Nitroaniline	250 U	ug/l	250	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
4,6-Dinitro-2-methylphenol	250 U	ug/l	250	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
N-Nitrosodiphenylamine (1)	100 U	ug/l	100	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Bromophenyl-phenylether	100 U	ug/l	100	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorobenzene	100 U	ug/l	100	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Pentachlorophenol	250 U	ug/l	250	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Phanthrene	100 U	ug/l	100	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Anthracene	100 U	ug/l	100	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Carbazole	100 U	ug/l	100	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Di-n-butylphthalate	100 U	ug/l	100	10 UJ	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10
Fluoranthene	100 U	ug/l	100	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Pyrene	100 U	ug/l	100	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Butylbenzylphthalate	100 U	ug/l	100	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
3,3-Dichlorobenzidine	100 U	ug/l	100	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzo (a) anthracene	100 U	ug/l	100	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chrysene	100 U	ug/l	100	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Ethylhexyl) phthalate	490 J	ug/l	100	10 UJ	ug/l	10	10 UJ	ug/l	10	16	ug/l	10
Di-n-octylphthalate	100 UJ	ug/l	100	10 UJ	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10
Benzo (b) fluoranthene	100 U	ug/l	100	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzo (k) fluoranthene	100 U	ug/l	100	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzo (a) pyrene	100 U	ug/l	100	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Indeno (1,2,3-cd) pyrene	100 U	ug/l	100	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Dibenz (a,h) anthracene	100 U	ug/l	100	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzo (g,h,i) perylene	100 U	ug/l	100	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:54:16
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90334002			90334002RE			90337003			90337003DL		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF3-3			WHF3-3RE			WHF3-3B			WHF3-3BDL		
Collect Date:	14-JAN-94			14-JAN-94			18-JAN-94			18-JAN-94		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW	ug/l											
Phenol	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	10	
bis(2-Chloroethyl) ether	10 UJ	ug/l	10		10 UJ	ug/l	10		10 UJ	ug/l	100	
2-Chlorophenol	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	100	
1,3-Dichlorobenzene	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	100	
1,4-Dichlorobenzene	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	100	
1,2-Dichlorobenzene	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	100	
2-Methylphenol	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	100	
2,2-oxybis(1-Chloropropane)	10 UJ	ug/l	10		10 UJ	ug/l	10		10 UJ	ug/l	100	
4-Methylphenol	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	100	
N-Nitroso-di-n-propylamine	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	100	
Hexachloroethane	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	100	
Nitrobenzene	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	100	
Isophorone	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	100	
2-Nitrophenol	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	100	
2,4-Dimethylphenol	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	100	
bis(2-Chloroethoxy) methane	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	100	
2,4-Dichlorophenol	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	100	
1,2,4-Trichlorobenzene	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	100	
Naphthalene	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	100	
4-Chloroaniline	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	100	
Hexachlorobutadiene	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	100	
4-Chloro-3-methylphenol	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	100	
2-Methylnaphthalene	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	100	
Hexachlorocyclopentadiene	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	100	
2,4,6-Trichlorophenol	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	100	
2,4,5-Trichlorophenol	25 U	ug/l	25		25 UJ	ug/l	25		25 U	ug/l	250	
2-Chloronaphthalene	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	100	
2-Nitroaniline	25 U	ug/l	25		25 UJ	ug/l	25		25 U	ug/l	250	
Dimethylphthalate	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	100	
Acenaphthylene	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	100	
2,6-Dinitrotoluene	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	100	
3-Nitroaniline	25 U	ug/l	25		25 UJ	ug/l	25		25 U	ug/l	250	
Acenaphthene	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	100	
2,4-Dinitrophenol	25 UJ	ug/l	25		25 UJ	ug/l	25		25 UJ	ug/l	250	
4-Nitrophenol	25 UJ	ug/l	25		25 UJ	ug/l	25		25 UJ	ug/l	250	
Dibenzofuran	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	100	
2,4-Dinitrotoluene	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	100	
Diethylphthalate	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	100	
4-Chlorophenyl-phenylether	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	100	
Fluorene	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	100	

02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:54:16
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90334002			90334002RE			90337003			90337003DL		
Site Locator	WHITING			WHITING			WHITING			WHITING		
Collect Date:	WHF3-3			WHF3-3RE			WHF3-3B			WHF3-3BL		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	25 U	ug/l		25	25 UJ	ug/l		25	25 U	ug/l		25
4,6-Dinitro-2-methylphenol	25 U	ug/l		25	25 UJ	ug/l		25	25 U	ug/l		25
N-Nitrosodiphenylamine (1)	10 U	ug/l		10	10 UJ	ug/l		10	10 U	ug/l		100
4-Bromophenyl-phenylether	10 U	ug/l		10	10 UJ	ug/l		10	10 U	ug/l		100
Hexachlorobenzene	10 U	ug/l		10	10 UJ	ug/l		10	10 U	ug/l		100
Pentachlorophenol	25 U	ug/l		25	25 UJ	ug/l		25	25 U	ug/l		25
Phenanthrene	10 U	ug/l		10	10 UJ	ug/l		10	10 U	ug/l		100
Anthracene	10 U	ug/l		10	10 UJ	ug/l		10	10 U	ug/l		100
Carbazole	10 U	ug/l		10	10 UJ	ug/l		10	10 U	ug/l		100
Di-n-butylphthalate	10 UJ	ug/l		10	10 UJ	ug/l		10	10 UJ	ug/l		100
Fluoranthene	10 U	ug/l		10	10 UJ	ug/l		10	10 U	ug/l		100
Pyrene	10 U	ug/l		10	10 UJ	ug/l		10	10 U	ug/l		100
Butylbenzylphthalate	10 U	ug/l		10	10 UJ	ug/l		10	10 U	ug/l		100
3,3'-Dichlorobenzidine	10 U	ug/l		10	10 UJ	ug/l		10	10 U	ug/l		100
Benzo (a) anthracene	10 U	ug/l		10	10 UJ	ug/l		10	10 U	ug/l		100
Chrysene	10 U	ug/l		10	10 UJ	ug/l		10	10 U	ug/l		100
bis(2-Ethylhexyl) phthalate	130 UJ	ug/l		10	3 J	ug/l		10	10 U	ug/l		100
Di-n-octylphthalate	10 UJ	ug/l		10	10 UJ	ug/l		10	10 UJ	ug/l		100
Benzo (b) fluoranthene	10 U	ug/l		10	10 UJ	ug/l		10	10 U	ug/l		100
Benzo (k) fluoranthene	10 U	ug/l		10	10 UJ	ug/l		10	10 U	ug/l		100
Benzo (a) pyrene	10 U	ug/l		10	10 UJ	ug/l		10	10 U	ug/l		100
Indeno (1,2,3-cd) pyrene	10 U	ug/l		10	10 UJ	ug/l		10	10 U	ug/l		100
Dibenz (a,h) anthracene	10 U	ug/l		10	10 UJ	ug/l		10	10 U	ug/l		100
Benzo (g,h,i) perylene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		100

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE D = DOUBLE INTERMEDIATE SAMPLE E = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:54:16
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90325002			90334002DL			90353005			90343001		
Site Locator	WHITING			WHITING			WHITING			WHITING		
Collect Date:	WHF3-3D			WHF3-3DL			WHF3-4			WHF3-7B		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW	ug/l											
Phenol	10 U	ug/l	10	50 U	ug/l	50	26	ug/l	10	39	ug/l	10
bis(2-Chloroethyl) ether	10 U	ug/l	10	50 U	ug/l	50	10 UJ	ug/l	10	10 UJ	ug/l	10
2-Chlorophenol	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
1,3-Dichlorobenzene	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
1,4-Dichlorobenzene	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichlorobenzene	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
2-Methylphenol	10 U	ug/l	10	50 U	ug/l	50	30	ug/l	10	5 J	ug/l	10
2,2'-oxybis(1-Chloropropane)	10 U	ug/l	10	50 UJ	ug/l	50	10 UJ	ug/l	10	10 UJ	ug/l	10
4-Methylphenol	10 U	ug/l	10	50 U	ug/l	50	34	ug/l	10	10	ug/l	10
N-Nitroso-di-n-propylamine	10 U	ug/l	10	50 U	ug/l	50	10 UJ	ug/l	10	10 UJ	ug/l	10
Hexachloroethane	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
Nitrobenzene	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
Isophorone	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
2-Nitrophenol	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
2,4-Dimethylphenol	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroethoxy) methane	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
2,4-Dichlorophenol	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
1,2,4-Trichlorobenzene	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
Naphthalene	10 U	ug/l	10	50 U	ug/l	50	7 J	ug/l	10	5 J	ug/l	10
4-Chloroaniline	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
Hexachlorobutadiene	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
4-Chloro-3-methylphenol	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
2-Methylnaphthalene	10 U	ug/l	10	50 U	ug/l	50	2 J	ug/l	10	1 J	ug/l	10
Hexachlorocyclopentadiene	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
2,4,6-Trichlorophenol	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
2,4,5-Trichlorophenol	25 U	ug/l	25	120 U	ug/l	120	25 U	ug/l	25	25 U	ug/l	25
2-Chloronaphthalene	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
2-Nitroaniline	25 U	ug/l	25	120 U	ug/l	120	25 U	ug/l	25	25 U	ug/l	25
Dimethylphthalate	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
Acenaphthylene	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
2,6-Dinitrotoluene	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
3-Nitroaniline	25 U	ug/l	25	120 UJ	ug/l	120	25 U	ug/l	25	25 U	ug/l	25
Acenaphthene	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrophenol	25 U	ug/l	25	120 U	ug/l	120	25 U	ug/l	25	25 U	ug/l	25
4-Nitrophenol	25 U	ug/l	25	120 UJ	ug/l	120	25 U	ug/l	25	25 U	ug/l	25
Dibenzofuran	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrotoluene	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
Diethylphthalate	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
4-Chlorophenyl-phenylether	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
Fluorene	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10

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GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90325002			90334002DL			90353005			90343001		
Site Locator	WHITING	WHITING	WHITING	WHITING	WHITING	WHITING	WHITING	WHITING	WHITING	WHITING	WHITING	WHITING
Collect Date:	WHD3-3D	WHD3-3DL	WHD3-4	WHD3-4	WHD3-4	WHD3-4	WHD3-7B	WHD3-7B	WHD3-7B	WHD3-7B	WHD3-7B	WHD3-7B
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	25 U	ug/l	25	120 UJ	ug/l	120	25 U	ug/l	25	25 U	ug/l	25
4,6-Dinitro-2-methylphenol	25 U	ug/l	25	120 U	ug/l	120	25 U	ug/l	25	25 U	ug/l	25
N-Nitrosodiphenylamine (1)	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
4-Bromophenyl-phenylether	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
Hexachlorobenzene	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
Pentachlorophenol	25 U	ug/l	25	120 U	ug/l	120	25 U	ug/l	25	25 U	ug/l	25
Phenanthrene	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
Anthracene	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
Carbazole	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	1 J	ug/l	10
Di-n-butylphthalate	10 UJ	ug/l	10	50 UJ	ug/l	50	10 UJ	ug/l	10	10 UJ	ug/l	10
Fluoranthene	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
Pyrene	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
Butylbenzylphthalate	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
3,3-Dichlorobenzidine	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
Benzo (a) anthracene	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
Chrysene	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
bis(2-Ethylhexyl) phthalate	7 J	ug/l	10	130 UJ	ug/l	50	11	ug/l	10	3 J	ug/l	10
Di-n-octylphthalate	10 U	ug/l	10	50 UJ	ug/l	50	10 UJ	ug/l	10	10 UJ	ug/l	10
Benzo (b) fluoranthene	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
Benzo (k) fluoranthene	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
Benzo (a) pyrene	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
Indeno (1,2,3-cd) pyrene	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
Dibenz (a,h) anthracene	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10
Benzo (g,h,i) perylene	10 U	ug/l	10	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE D = DOUBLE INTERMEDIATE SAMPLE E = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:54:16
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90325003	Site	WHITING	Locator	WHF3-7D	Collect Date:	11-JAN-94	90337004	WHITING	WHITING	WHITING	90343002				
			WHITING	WHF3-7C	18-JAN-94		<td>WHITING</td> <td>WHF3-7CDL</td> <td>18-JAN-94</td> <th>WHITING</th> <th>WHF4-1</th>	WHITING	WHF3-7CDL	18-JAN-94	WHITING	WHF4-1				
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	DL	
CLP SEMIVOLATILES 90-SOW ug/l																
Phenol	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	40	10	U	ug/l	10
bis(2-Chloroethyl) ether	10	U	ug/l	10	20	UJ	ug/l	20	40	U	ug/l	40	10	U	ug/l	10
2-Chlorophenol	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	40	10	U	ug/l	10
1,3-Dichlorobenzene	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	40	10	U	ug/l	10
1,4-Dichlorobenzene	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	40	10	U	ug/l	10
1,2-Dichlorobenzene	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	40	10	U	ug/l	10
2-Methylphenol	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	40	10	U	ug/l	10
2,2'-oxybis(1-Chloropropane)	10	U	ug/l	10	20	UJ	ug/l	20	40	UJ	ug/l	40	10	UJ	ug/l	10
4-Methylphenol	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	40	10	U	ug/l	10
N-Nitroso-di-n-propylamine	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	40	10	U	ug/l	10
Hexachloroethane	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	40	10	U	ug/l	10
Nitrobenzene	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	40	10	U	ug/l	10
Isophorone	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	40	10	U	ug/l	10
2-Nitrophenol	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	40	10	U	ug/l	10
2,4-Dimethylphenol	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	40	10	U	ug/l	10
bis(2-Chloroethoxy) methane	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	40	10	U	ug/l	10
2,4-Dichlorophenol	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	40	10	U	ug/l	10
1,2,4-Trichlorobenzene	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	40	10	U	ug/l	10
Naphthalene	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	40	10	U	ug/l	10
4-Chloroaniline	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	40	10	U	ug/l	10
Hexachlorobutadiene	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	40	10	U	ug/l	10
4-Chloro-3-methylphenol	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	40	10	U	ug/l	10
2-Methylnaphthalene	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	40	10	U	ug/l	10
Hexachlorocyclopentadiene	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	40	10	U	ug/l	10
2,4,6-Trichlorophenol	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	40	10	U	ug/l	10
2,4,5-Trichlorophenol	25	U	ug/l	25	50	U	ug/l	50	100	U	ug/l	100	25	U	ug/l	25
2-Chloronaphthalene	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	40	10	U	ug/l	10
2-Nitroaniline	25	U	ug/l	25	50	U	ug/l	50	100	U	ug/l	100	25	U	ug/l	25
Dimethylphthalate	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	40	10	U	ug/l	10
Acenaphthylene	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	40	10	U	ug/l	10
2,6-Dinitrotoluene	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	40	10	U	ug/l	10
3-Nitroaniline	25	U	ug/l	25	50	U	ug/l	50	100	U	ug/l	100	25	U	ug/l	25
Acenaphthene	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	40	10	U	ug/l	10
2,4-Dinitrophenol	25	U	ug/l	25	50	UJ	ug/l	50	100	U	ug/l	100	25	U	ug/l	25
4-Nitrophenol	25	U	ug/l	25	50	UJ	ug/l	50	100	U	ug/l	100	25	U	ug/l	25
Dibenzofuran	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	40	10	U	ug/l	10
2,4-Dinitrotoluene	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	40	10	U	ug/l	10
Diethylphthalate	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	40	10	U	ug/l	10
4-Chlorophenyl-phenylether	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	40	10	U	ug/l	10
Fluorene	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	40	10	U	ug/l	10

02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:54:16
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90325003			90337004			90337004DL			90343002		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHD3-7D			WHD3-7C			WHD3-7CDL			WHD4-1		
Collect Date:	11-JAN-94			18-JAN-94			18-JAN-94			19-JAN-94		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	25	U	ug/l	25	50	U	ug/l	50	100	U	ug/l	100
4,6-Dinitro-2-methylphenol	25	U	ug/l	25	50	U	ug/l	50	100	U	ug/l	25
N-Nitrosodiphenylamine (1)	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	10
4-Bromophenyl-phenylether	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	10
Hexachlorobenzene	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	10
Pentachlorophenol	25	U	ug/l	25	50	U	ug/l	50	100	U	ug/l	25
Phanthrene	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	10
Anthracene	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	10
Carbazole	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	10
Di-n-butylphthalate	10	UJ	ug/l	10	20	UJ	ug/l	20	40	U	ug/l	10
Fluoranthene	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	10
Pyrene	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	10
Butylbenzylphthalate	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	10
3,3-Dichlorobenzidine	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	10
Benzo (a) anthracene	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	10
Chrysene	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	10
bis(2-Ethylhexyl) phthalate	2	J	ug/l	10	220	ug/l	20	220	ug/l	40	10	ug/l
Di-n-octylphthalate	10	U	ug/l	10	20	UJ	ug/l	20	40	UJ	ug/l	10
Benzo (b) fluoranthene	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	10
Benzo (k) fluoranthene	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	10
Benzo (a) pyrene	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	10
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	10
Dibenz (a,h) anthracene	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	10
Benzo (g,h,i) perylene	10	U	ug/l	10	20	U	ug/l	20	40	U	ug/l	10

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE D = DOUBLE INTERMEDIATE SAMPLE E = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:54:16
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90256001			90265002			90253001			90359001		
Site Locator	WHITING			WHITING			WHITING			WHITING		
Collect Date:	WHF5-OW1			WHF5-3			WHF5-8B			WHF5-8D		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW	ug/l											
Phenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroethyl) ether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
2-Chlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,3-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,4-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,2-oxybis(1-Chloropropane)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
4-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
N-Nitroso-di-n-propylamine	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Nitrobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Isophorone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitrophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dimethylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroethoxy) methane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2,4-Trichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Naphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloroaniline	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorobutadiene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloro-3-methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylnaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorocyclopentadiene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,6-Trichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,5-Trichlorophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
2-Chloronaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Dimethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acenaphthylene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,6-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
3-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Acenaphthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrophenol	25 UJ	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25
4-Nitrophenol	25 UJ	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25
Dibenzofuran	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Diethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chlorophenyl-phenylether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Fluorene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:54:16
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90256001			90265002			90253001			90359001		
Site	WHITING			WHITING			WHITING		WHITING			
Locator	WHF5-0W1			WHF5-3			WHF5-8B		WHF5-8D			
Collect Date:	01-DEC-93			02-DEC-93			30-NOV-93		21-JAN-94			
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
4-Nitroaniline	25 UJ	ug/l	25	25 U	ug/l	25	25 UJ	ug/l	25	25 U	ug/l	25
4,6-Dinitro-2-methylphenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
N-Nitrosodiphenylamine (1)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Bromophenyl-phenylether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Pentachlorophenol	25 UJ	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25	25 U	ug/l	25
Phenanthrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Anthracene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Carbazole	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Di-n-butylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
Fluoranthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Pyrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Butylbenzylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
3,3-Dichlorobenzidine	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzo (a) anthracene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chrysene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Ethylhexyl) phthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	1 J	ug/l	10
Di-n-octylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
Benzo (b) fluoranthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzo (k) fluoranthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzo (a) pyrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Indeno (1,2,3-cd) pyrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Dibenz (a,h) anthracene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzo (g,h,i) perylene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:54:16
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90257001			90257002			90253002			90242001		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF5-9B			WHF5-9BA			WHF5-9D			WHF5-10B		
Collect Date:	01-DEC-93			01-DEC-93			30-NOV-93			19-NOV-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW	ug/l											
Phenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Chloroethyl) ether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Chlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,3-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,4-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Methylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,2-oxybis(1-Chloropropane)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Methylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
N-Nitroso-di-n-propylamine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Nitrobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Isophorone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Nitrophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dimethylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Chloroethoxy) methane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2,4-Trichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Naphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chloroaniline	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobutadiene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chloro-3-methylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Methylnaphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorocyclopentadiene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4,6-Trichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4,5-Trichlorophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
2-Chloronaphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Dimethylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Acenaphthylene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,6-Dinitrotoluene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Acenaphthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
4-Nitrophenol	25	UJ	ug/l	25	25	UJ	ug/l	25	25	UJ	ug/l	25
Dibenzofuran	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrotoluene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Diethylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chlorophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Fluorene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10

02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:54:16
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90257001			90257002			90253002			90242001		
Site	WHITING	WHITING	WHITING	Site	WHITING	WHITING	Site	WHITING	WHITING	Site	WHITING	
Locator	WHF5-9B	WHF5-9BA	WHF5-90	Locator	WHF5-9B	WHF5-9A	Locator	WHF5-90	WHF5-10B	Locator	WHF5-10B	
Collect Date:	01-DEC-93	01-DEC-93	30-NOV-93	Collect Date:	01-DEC-93	01-DEC-93	Collect Date:	30-NOV-93	19-NOV-93	Collect Date:	19-NOV-93	
	VALUE	QUAL	UNITS		VALUE	QUAL	UNITS		VALUE	QUAL	UNITS	DL
4-Nitroaniline	25 R	ug/l	25	25 R	ug/l	25	25 UJ	ug/l	25	25 U	ug/l	25
4,6-Dinitro-2-methylphenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
N-Nitrosodiphenylamine (1)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Bromophenyl-phenylether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorobenzene	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Pentachlorophenol	25 U	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25	25 U	ug/l	25
Phenanthrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Anthracene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Carbazole	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Di-n-butylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
Fluoranthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Pyrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Butylbenzylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
3,3-Dichlorobenzidine	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzo (a) anthracene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chrysene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Ethylhexyl) phthalate	36	ug/l	10	27	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
Di-n-octylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzo (b) fluoranthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzo (k) fluoranthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzo (a) pyrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Indeno (1,2,3-cd) pyrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Dibenz (a,h) anthracene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzo (g,h,i) perylene	10 UJ	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:54:16
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90240003			90240001			90236004			90240002		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF5-10D			WHF6-1B			WHF6-1D			WHF6-3		
Collect Date:	18-NOV-93			18-NOV-93			17-NOV-93			18-NOV-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	25 U	ug/l		25	25 U	ug/l		25	50 U	ug/l		25
4,6-Dinitro-2-methylphenol	25 U	ug/l		25	25 U	ug/l		25	50 U	ug/l		25
N-Nitrosodiphenylamine (1)	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
4-Bromophenyl-phenylether	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Hexachlorobenzene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Pentachlorophenol	25 U	ug/l		25	25 U	ug/l		25	50 U	ug/l		25
Phenanthrene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Anthracene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Carbazole	10 U	ug/l		10	10 U	ug/l		10	-	ug/l		10
Di-n-butylphthalate	10 U	ug/l		10	10 UJ	ug/l		10	10 UJ	ug/l		10
Fluoranthene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Pyrene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Butylbenzylphthalate	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
3,3-Dichlorobenzidine	10 U	ug/l		10	10 U	ug/l		10	20 U	ug/l		10
Benzo (a) anthracene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Chrysene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
bis(2-Ethylhexyl) phthalate	2 J	ug/l		10	12	ug/l		10	5 J	ug/l		10
Di-n-octylphthalate	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Benzo (b) fluoranthene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Benzo (k) fluoranthene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Benzo (a) pyrene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Indeno (1,2,3-cd) pyrene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Dibenz (a,h) anthracene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Benzo (g,h,i) perylene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:54:16
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90265003	90285001	90278002	90280002								
Site	WHITING	WHITING	WHITING	WHITING								
Locator	WHF7-1	WHF8-1	WHF29-1	WHF29-2								
Collect Date:	02-DEC-93	09-DEC-93	07-DEC-93	08-DEC-93								
	VALUE	QUAL UNITS	DL	VALUE								
CLP SEMIVOLATILES 90-SOW	ug/l											
Phenol	150	ug/l	50	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroethyl) ether	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Chlorophenol	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,3-Dichlorobenzene	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,4-Dichlorobenzene	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichlorobenzene	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylphenol	400	ug/l	50	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,2-oxybis(1-Chloropropane)	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methylphenol	390	ug/l	50	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
N-Nitroso-di-n-propylamine	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachloroethane	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Nitrobenzene	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Isophorone	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitrophenol	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dimethylphenol	40 J	ug/l	50	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroethoxy) methane	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dichlorophenol	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2,4-Trichlorobenzene	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Naphthalene	9 J	ug/l	50	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloroaniline	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorobutadiene	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloro-3-methylphenol	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylnaphthalene	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorocyclopentadiene	50 U	ug/l	50	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10
2,4,6-Trichlorophenol	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,5-Trichlorophenol	120 U	ug/l	120	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
2-Chloronaphthalene	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitroaniline	120 U	ug/l	120	25 UJ	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25
Dimethylphthalate	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acenaphthylene	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,6-Dinitrotoluene	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
3-Nitroaniline	120 U	ug/l	120	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Acenaphthene	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrophenol	120 UJ	ug/l	120	25 UJ	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25
4-Nitrophenol	120 UJ	ug/l	120	25 UJ	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25
Dibenzofuran	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrotoluene	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Diethylphthalate	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chlorophenyl-phenylether	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Fluorene	50 U	ug/l	50	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:54:16
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90265003			90285001			90278002			90280002		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF7-1			WHF8-1			WHF29-1			WHF29-2		
Collect Date:	02-DEC-93			09-DEC-93			07-DEC-93			08-DEC-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	120	UJ	ug/l	120	25	UJ	ug/l	25	25	UJ	ug/l	25
4,6-Dinitro-2-methylphenol	120	U	ug/l	120	25	UJ	ug/l	25	25	UJ	ug/l	25
N-Nitrosodiphenylamine (1)	50	U	ug/l	50	10	U	ug/l	10	10	U	ug/l	10
4-Bromophenyl-phenylether	50	U	ug/l	50	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobenzene	50	U	ug/l	50	10	U	ug/l	10	10	U	ug/l	10
Pentachlorophenol	120	UJ	ug/l	120	25	UJ	ug/l	25	25	UJ	ug/l	25
Phenanthrene	50	U	ug/l	50	10	U	ug/l	10	10	U	ug/l	10
Anthracene	50	U	ug/l	50	10	U	ug/l	10	10	U	ug/l	10
Carbazole	10	J	ug/l	50	10	U	ug/l	10	10	U	ug/l	10
Di-n-butylphthalate	50	U	ug/l	50	10	U	ug/l	10	10	U	ug/l	10
Fluoranthene	50	U	ug/l	50	10	U	ug/l	10	10	U	ug/l	10
Pyrene	50	U	ug/l	50	10	U	ug/l	10	10	U	ug/l	10
Butylbenzylphthalate	50	U	ug/l	50	10	U	ug/l	10	10	U	ug/l	10
3,3-Dichlorobenzidine	50	U	ug/l	50	10	UJ	ug/l	10	10	UJ	ug/l	10
Benzo (a) anthracene	50	U	ug/l	50	10	U	ug/l	10	10	U	ug/l	10
Chrysene	50	U	ug/l	50	10	U	ug/l	10	10	U	ug/l	10
bis(2-Ethylhexyl) phthalate	50	U	ug/l	50	10	U	ug/l	10	10	U	ug/l	10
Di-n-octylphthalate	50	U	ug/l	50	10	U	ug/l	10	10	U	ug/l	10
Benzo (b) fluoranthene	50	U	ug/l	50	10	U	ug/l	10	10	U	ug/l	10
Benzo (k) fluoranthene	50	U	ug/l	50	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) pyrene	50	U	ug/l	50	10	U	ug/l	10	10	U	ug/l	10
Indeno (1,2,3-cd) pyrene	50	U	ug/l	50	10	U	ug/l	10	10	U	ug/l	10
Dibenz (a,h) anthracene	50	U	ug/l	50	10	U	ug/l	10	10	U	ug/l	10
Benzo (g,h,i) perylene	50	UJ	ug/l	50	10	U	ug/l	10	10	U	ug/l	10

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:54:16
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90280003			90280003RE			90280003R2			90280004		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF29-3			WHF29-3RE			WHF29-3R2			WHF29-3A		
Collect Date:	08-DEC-93			08-DEC-93			08-DEC-93			08-DEC-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW	ug/l											
Phenol	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
bis(2-Chloroethyl) ether	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
2-Chlorophenol	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
1,3-Dichlorobenzene	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
1,4-Dichlorobenzene	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
1,2-Dichlorobenzene	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
2-Methylphenol	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
2,2-oxybis(1-Chloropropane)	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
4-Methylphenol	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
N-Nitroso-di-n-propylamine	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
Hexachloroethane	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
Nitrobenzene	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
Isophorone	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
2-Nitrophenol	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
2,4-Dimethylphenol	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
bis(2-Chloroethoxy) methane	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
2,4-Dichlorophenol	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
1,2,4-Trichlorobenzene	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
Naphthalene	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
4-Chloroaniline	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
Hexachlorobutadiene	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
4-Chloro-3-methylphenol	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
2-Methylnaphthalene	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
Hexachlorocyclopentadiene	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
2,4,6-Trichlorophenol	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
2,4,5-Trichlorophenol	250	R	ug/l	250	280	R	ug/l	280	280	R	ug/l	280
2-Chloronaphthalene	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
2-Nitroaniline	250	R	ug/l	250	280	R	ug/l	280	280	R	ug/l	280
Dimethylphthalate	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
Acenaphthylene	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
2,6-Dinitrotoluene	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
3-Nitroaniline	250	R	ug/l	250	280	R	ug/l	280	280	R	ug/l	280
Acenaphthene	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
2,4-Dinitrophenol	250	R	ug/l	250	280	R	ug/l	280	280	R	ug/l	280
4-Nitrophenol	250	R	ug/l	250	280	R	ug/l	280	280	R	ug/l	280
Dibenzofuran	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
2,4-Dinitrotoluene	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
Diethylphthalate	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
4-Chlorophenyl-phenylether	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
Fluorene	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110

02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:54:16
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90280003			90280003RE			90280003R2			90280004		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF29-3			WHF29-3RE			WHF29-3R2			WHF29-3A		
Collect Date:	08-DEC-93			08-DEC-93			08-DEC-93			08-DEC-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	250	R	ug/l	250	280	R	ug/l	280	280	R	ug/l	280
4,6-Dinitro-2-methylphenol	250	R	ug/l	250	280	R	ug/l	280	280	R	ug/l	280
N-Nitrosodiphenylamine (1)	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
4-Bromophenyl-phenylether	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
Hexachlorobenzene	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
Pentachlorophenol	250	R	ug/l	250	280	R	ug/l	280	280	R	ug/l	280
Phenanthrene	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
Anthracene	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
Carbazole	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
Di-n-butylphthalate	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
Fluoranthene	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
Pyrene	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
Butylbenzylphthalate	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
3,3-Dichlorobenzidine	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
Benzo (a) anthracene	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
Chrysene	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
bis(2-Ethylhexyl) phthalate	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
Di-n-octylphthalate	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
Benzo (b) fluoranthene	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
Benzo (k) fluoranthene	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
Benzo (a) pyrene	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
Indeno (1,2,3-cd) pyrene	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
Dibenz (a,h) anthracene	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110
Benzo (g,h,i) perylene	100	R	ug/l	100	110	R	ug/l	110	110	R	ug/l	110

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:54:16
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90280005	90278001	90285003	90286002								
Site	WHITING	WHITING	WHITING	WHITING								
Locator	WHF29-4	WHF29-5	WHF30-2	WHF30-3DL								
Collect Date:	08-DEC-93	07-DEC-93	09-DEC-93	10-DEC-93								
	VALUE	QUAL UNITS	DL	VALUE								
CLP SEMIVOLATILES 90-SOW	ug/l											
Phenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
bis(2-Chloroethyl) ether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
2-Chlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
1,3-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
1,4-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
1,2-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
2-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
2,2-oxybis(1-Chloropropane)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
4-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
N-Nitroso-di-n-propylamine	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
Hexachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
Nitrobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
Isophorone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
2-Nitrophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
2,4-Dimethylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
bis(2-Chloroethoxy) methane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
2,4-Dichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
1,2,4-Trichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
Naphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
4-Chloroaniline	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
Hexachlorobutadiene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
4-Chloro-3-methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
2-Methylnaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
Hexachlorocyclopentadiene	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	250 U	ug/l	250
2,4,6-Trichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
2,4,5-Trichlorophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	620 U	ug/l	620
2-Chloronaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
2-Nitroaniline	25 UJ	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25	620 U	ug/l	620
Dimethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
Acenaphthylene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
2,6-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
3-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	620 U	ug/l	620
Acenaphthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
2,4-Dinitrophenol	25 UJ	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25	620 U	ug/l	620
4-Nitrophenol	25 UJ	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25	620 U	ug/l	620
Dibenzofuran	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
2,4-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
Diethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
4-Chlorophenyl-phenylether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
Fluorene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250

02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:54:16
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90280005			90278001			90285003			90286002		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF29-4			WHF29-5			WHF30-2			WHF30-3DL		
Collect Date:	08-DEC-93			07-DEC-93			09-DEC-93			10-DEC-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	25 UJ	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25	620 U	ug/l	620
4,6-Dinitro-2-methylphenol	25 UJ	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25	620 U	ug/l	620
N-Nitrosodiphenylamine (1)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
4-Bromophenyl-phenylether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
Hexachlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
Pentachlorophenol	25 UJ	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25	620 U	ug/l	620
Phenanthrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
Anthracene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
Carbazole	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
Di-n-butylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
Fluoranthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
Pyrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
Butylbenzylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
3,3-Dichlorobenzidine	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	250 U	ug/l	250
Benzo (a) anthracene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
Chrysene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
bis(2-Ethylhexyl) phthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
Di-n-octylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
Benzo (b) fluoranthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
Benzo (k) fluoranthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
Benzo (a) pyrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
Indeno (1,2,3-cd) pyrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
Dibenz (a,h) anthracene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250
Benzo (g,h,i) perylene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	250 U	ug/l	250

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:54:16
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90289002			90285002			90353003			90353004		
Site Locator	WHITING			WHITING			WHITING			WHITING		
Collect Date:	13-DEC-93			09-DEC-93			20-JAN-94			20-JAN-94		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
CLP SEMIVOLATILES 90-SOW	ug/l											
Phenol	250 UJ	ug/l	250	10 U	ug/l	10	14	ug/l	10	10 U	ug/l	10
bis(2-Chloroethyl) ether	250 UJ	ug/l	250	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Chlorophenol	250 UJ	ug/l	250	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,3-Dichlorobenzene	250 UJ	ug/l	250	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,4-Dichlorobenzene	250 UJ	ug/l	250	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichlorobenzene	250 UJ	ug/l	250	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylphenol	250 UJ	ug/l	250	10 U	ug/l	10	13	ug/l	10	13	ug/l	10
2,2-oxybis(1-Chloropropane)	250 UJ	ug/l	250	10 U	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10
4-Methylphenol	250 UJ	ug/l	250	10 U	ug/l	10	13	ug/l	10	14	ug/l	10
N-Nitroso-di-n-propylamine	250 UJ	ug/l	250	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachloroethane	250 UJ	ug/l	250	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Nitrobenzene	250 UJ	ug/l	250	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Isophorone	250 UJ	ug/l	250	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitrophenol	250 UJ	ug/l	250	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dimethylphenol	250 UJ	ug/l	250	10 U	ug/l	10	8 J	ug/l	10	9 J	ug/l	10
bis(2-Chloroethoxy) methane	250 UJ	ug/l	250	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dichlorophenol	250 UJ	ug/l	250	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2,4-Trichlorobenzene	250 UJ	ug/l	250	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Naphthalene	250 UJ	ug/l	250	10 U	ug/l	10	10	ug/l	10	8 J	ug/l	10
4-Chloroaniline	250 UJ	ug/l	250	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorobutadiene	250 UJ	ug/l	250	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloro-3-methylphenol	250 UJ	ug/l	250	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylnaphthalene	250 UJ	ug/l	250	10 U	ug/l	10	4 J	ug/l	10	4 J	ug/l	10
Hexachlorocyclopentadiene	250 UJ	ug/l	250	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,6-Trichlorophenol	250 UJ	ug/l	250	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,5-Trichlorophenol	620 UJ	ug/l	620	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
2-Chloronaphthalene	250 UJ	ug/l	250	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitroaniline	620 UJ	ug/l	620	25 UJ	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Dimethylphthalate	250 UJ	ug/l	250	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acenaphthylene	250 UJ	ug/l	250	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,6-Dinitrotoluene	250 UJ	ug/l	250	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
3-Nitroaniline	620 UJ	ug/l	620	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Acenaphthene	250 UJ	ug/l	250	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrophenol	620 UJ	ug/l	620	25 UJ	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
4-Nitrophenol	620 UJ	ug/l	620	25 UJ	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Dibenzofuran	250 UJ	ug/l	250	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrotoluene	250 UJ	ug/l	250	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Diethylphthalate	250 UJ	ug/l	250	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chlorophenyl-phenylether	250 UJ	ug/l	250	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
fluorene	250 UJ	ug/l	250	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:54:16
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90289002			90285002			90353003			90353004		
Site Locator	WHITING			WHITING			WHITING			WHITING		
Collect Date:	WHF30-4			WHF30-5			WHF32-1			WHF32-1A		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	620	UJ	ug/l	620	25	UJ	ug/l	25	25	U	ug/l	25
4,6-Dinitro-2-methylphenol	620	UJ	ug/l	620	25	UJ	ug/l	25	25	U	ug/l	25
N-Nitrosodiphenylamine (1)	250	UJ	ug/l	250	10	U	ug/l	10	10	U	ug/l	10
4-Bromophenyl-phenylether	250	UJ	ug/l	250	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobenzene	250	UJ	ug/l	250	10	U	ug/l	10	10	U	ug/l	10
Pentachlorophenol	620	UJ	ug/l	620	25	UJ	ug/l	25	25	U	ug/l	25
Phenanthrene	250	UJ	ug/l	250	10	U	ug/l	10	1	J	ug/l	10
Anthracene	250	UJ	ug/l	250	10	U	ug/l	10	10	U	ug/l	10
Carbazole	250	UJ	ug/l	250	10	U	ug/l	10	10	U	ug/l	10
Di-n-butylphthalate	250	UJ	ug/l	250	10	U	ug/l	10	10	UJ	ug/l	10
Fluoranthene	250	UJ	ug/l	250	10	U	ug/l	10	10	U	ug/l	10
Pyrene	250	UJ	ug/l	250	10	U	ug/l	10	10	U	ug/l	10
Butylbenzylphthalate	250	UJ	ug/l	250	10	U	ug/l	10	10	U	ug/l	10
3,3-Dichlorobenzidine	250	UJ	ug/l	250	10	UJ	ug/l	10	10	U	ug/l	10
Benzo (a) anthracene	250	UJ	ug/l	250	10	U	ug/l	10	10	U	ug/l	10
Chrysene	250	UJ	ug/l	250	10	U	ug/l	10	10	U	ug/l	10
bis(2-Ethylhexyl) phthalate	250	UJ	ug/l	250	10	U	ug/l	10	10	U	ug/l	10
Di-n-octylphthalate	250	UJ	ug/l	250	10	U	ug/l	10	10	U	ug/l	10
Benzo (b) fluoranthene	250	UJ	ug/l	250	10	U	ug/l	10	10	U	ug/l	10
Benzo (k) fluoranthene	250	UJ	ug/l	250	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) pyrene	250	UJ	ug/l	250	10	U	ug/l	10	10	U	ug/l	10
Indeno (1,2,3-cd) pyrene	250	UJ	ug/l	250	10	U	ug/l	10	10	U	ug/l	10
Dibenz (a,h) anthracene	250	UJ	ug/l	250	10	U	ug/l	10	10	U	ug/l	10
Benzo (g,h,i) perylene	250	UJ	ug/l	250	10	U	ug/l	10	10	U	ug/l	10

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:54:16
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90343003			90343005			90353006			90353002		
Site Locator	WHITING			WHITING			WHITING			WHITING		
Collect Date:	WHF32-2			WHF32-3			WHF32-4			WHF32-5		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW	ug/l											
Phenol	10 U	ug/l	10	10 U	ug/l	10	42	ug/l	20	10 U	ug/l	10
bis(2-Chloroethyl) ether	10 U	ug/l	10	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10
2-Chlorophenol	10 U	ug/l	10	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10
1,3-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10
1,4-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10
1,2-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10
2-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	110	ug/l	20	10 U	ug/l	10
2,2-oxybis(1-Chloropropane)	10 UJ	ug/l	10	10 UJ	ug/l	10	20 UJ	ug/l	20	10 UUJ	ug/l	10
4-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	80	ug/l	20	10 U	ug/l	10
N-Nitroso-di-n-propylamine	10 U	ug/l	10	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10
Hexachloroethane	10 U	ug/l	10	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10
Nitrobenzene	10 U	ug/l	10	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10
Isophorone	10 U	ug/l	10	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10
2-Nitrophenol	10 U	ug/l	10	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10
2,4-Dimethylphenol	10 U	ug/l	10	10 U	ug/l	10	44	ug/l	20	10 U	ug/l	10
bis(2-Chloroethoxy) methane	10 U	ug/l	10	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10
2,4-Dichlorophenol	10 U	ug/l	10	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10
1,2,4-Trichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10
Naphthalene	4 J	ug/l	10	18	ug/l	10	12 J	ug/l	20	.5 J	ug/l	10
4-Chloroaniline	10 U	ug/l	10	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10
Hexachlorobutadiene	10 U	ug/l	10	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10
4-Chloro-3-methylphenol	10 U	ug/l	10	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10
2-Methylnaphthalene	1 J	ug/l	10	9 J	ug/l	10	6 J	ug/l	20	10 U	ug/l	10
Hexachlorocyclopentadiene	10 U	ug/l	10	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10
2,4,6-Trichlorophenol	10 U	ug/l	10	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10
2,4,5-Trichlorophenol	25 U	ug/l	25	25 U	ug/l	25	50 U	ug/l	50	25 U	ug/l	25
2-Chloronaphthalene	10 U	ug/l	10	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10
2-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	50 U	ug/l	50	25 U	ug/l	25
Dimethylphthalate	10 U	ug/l	10	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10
Acenaphthylene	10 U	ug/l	10	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10
2,6-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10
3-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	50 UJ	ug/l	50	25 U	ug/l	25
Acenaphthene	10 U	ug/l	10	10 U	ug/l	10	1 J	ug/l	20	10 U	ug/l	10
2,4-Dinitrophenol	25 U	ug/l	25	25 U	ug/l	25	50 U	ug/l	50	25 U	ug/l	25
4-Nitrophenol	25 U	ug/l	25	25 U	ug/l	25	50 UJ	ug/l	50	25 U	ug/l	25
Dibenzofuran	10 U	ug/l	10	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10
2,4-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10
Diethylphthalate	10 U	ug/l	10	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10
4-Chlorophenyl-phenylether	10 U	ug/l	10	10 U	ug/l	10	20 U	ug/l	20	10 U	ug/l	10
Fluorene	10 U	ug/l	10	10 U	ug/l	10	1 J	ug/l	20	10 U	ug/l	10

02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:54:16
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90343003			90343005			90353006			90353002		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF32-2			WHF32-3			WHF32-4			WHF32-5		
Collect Date:	19-JAN-94			19-JAN-94			20-JAN-94			20-JAN-94		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	25 U	ug/l		25	25 U	ug/l		25	50 UJ	ug/l		50
4,6-Dinitro-2-methylphenol	25 U	ug/l		25	25 U	ug/l		25	50 U	ug/l		50
N-Nitrosodiphenylamine (1)	10 U	ug/l		10	10 U	ug/l		10	20 U	ug/l		20
4-Bromophenyl-phenylether	10 U	ug/l		10	10 U	ug/l		10	20 U	ug/l		20
Hexachlorobenzene	10 U	ug/l		10	10 U	ug/l		10	20 U	ug/l		20
Pentachlorophenol	25 U	ug/l		25	25 U	ug/l		25	50 U	ug/l		50
Phenanthrene	10 U	ug/l		10	10 U	ug/l		10	6 J	ug/l		20
Anthracene	10 U	ug/l		10	10 U	ug/l		10	20 U	ug/l		20
Carbazole	10 U	ug/l		10	10 U	ug/l		10	20 U	ug/l		20
Di-n-butylphthalate	10 UJ	ug/l		10	10 UJ	ug/l		10	20 UJ	ug/l		20
Fluoranthene	10 U	ug/l		10	10 U	ug/l		10	4 J	ug/l		20
Pyrene	10 U	ug/l		10	10 U	ug/l		10	3 J	ug/l		20
Butylbenzylphthalate	10 U	ug/l		10	10 U	ug/l		10	20 U	ug/l		20
3,3-Dichlorobenzidine	10 U	ug/l		10	10 U	ug/l		10	20 U	ug/l		20
Benzo (a) anthracene	10 U	ug/l		10	10 U	ug/l		10	20 U	ug/l		20
Chrysene	10 U	ug/l		10	10 U	ug/l		10	20 U	ug/l		20
bis(2-Ethylhexyl) phthalate	2 J	ug/l		10	2 J	ug/l		10	6 J	ug/l		20
Di-n-octylphthalate	10 UJ	ug/l		10	10 UJ	ug/l		10	20 UJ	ug/l		20
Benzo (b) fluoranthene	10 U	ug/l		10	10 U	ug/l		10	20 U	ug/l		20
Benzo (k) fluoranthene	10 U	ug/l		10	10 U	ug/l		10	20 U	ug/l		20
Benzo (a) pyrene	10 U	ug/l		10	10 U	ug/l		10	20 U	ug/l		20
Indeno (1,2,3-cd) pyrene	10 U	ug/l		10	10 U	ug/l		10	20 U	ug/l		20
Dibenz (a,h) anthracene	10 U	ug/l		10	10 U	ug/l		10	20 U	ug/l		20
Benzo (g,h,i) perylene	10 U	ug/l		10	10 U	ug/l		10	20 U	ug/l		20

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE D = DOUBLE INTERMEDIATE SAMPLE E = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:54:16
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90320003	90320004	90291002	90320002								
Site	WHITING	WHITING	WHITING	WHITING								
Locator	WHF33-1	WHF33-1A	WHF33-2	WHF33-3								
Collect Date:	10-JAN-94	10-JAN-94	14-DEC-93	10-JAN-94								
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS								
CLP SEMIVOLATILES 90-SOW	ug/l											
Phenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroethyl) ether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Chlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,3-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,4-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,2-oxybis(1-Chloropropane)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
N-Nitroso-di-n-propylamine	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Nitrobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Isophorone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitrophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dimethylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroethoxy) methane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2,4-Trichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Naphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloroaniline	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorobutadiene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloro-3-methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylnaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorocyclopentadiene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,6-Trichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,5-Trichlorophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
2-Chloronaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Dimethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acenaphthylene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,6-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
3-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Acenaphthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
4-Nitrophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Dibenzofuran	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Diethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chlorophenyl-phenylether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Fluorene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:54:16
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90320003			90320004			90291002			90320002		
Site Locator	WHITING			WHITING			WHITING			WHITING		
Collect Date:	WHF33-1			WHF33-1A			WHF33-2			WHF33-3		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	25 U	ug/l		25	25 U	ug/l		25	25 U	ug/l		25
4,6-Dinitro-2-methylphenol	25 U	ug/l		25	25 U	ug/l		25	25 U	ug/l		25
N-Nitrosodiphenylamine (1)	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
4-Bromophenyl-phenylether	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Hexachlorobenzene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Pentachlorophenol	25 U	ug/l		25	25 U	ug/l		25	25 U	ug/l		25
Phenanthrene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Anthracene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Carbazole	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Di-n-butylphthalate	10 UJ	ug/l		10	10 UJ	ug/l		10	10 U	ug/l		10
Fluoranthene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Pyrene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Butylbenzylphthalate	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
3,3-Dichlorobenzidine	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Benzo (a) anthracene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Chrysene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
bis(2-Ethylhexyl) phthalate	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Di-n-octylphthalate	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Benzo (b) fluoranthene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Benzo (k) fluoranthene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Benzo (a) pyrene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Indeno (1,2,3-cd) pyrene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Dibenz (a,h) anthracene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Benzo (g,h,i) perylene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:54:16
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90291003	90291001			
Site	WHITING	WHITING			
Locator	WHF33-4	WHF33-5			
Collect Date:	14-DEC-93	14-DEC-93			
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP SEMIVOLATILES 90-SOW ug/l

Phenol	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroethyl) ether	10 U	ug/l	10	10 U	ug/l	10
2-Chlorophenol	10 U	ug/l	10	10 U	ug/l	10
1,3-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10
1,4-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10
2-Methylphenol	10 U	ug/l	10	10 U	ug/l	10
2,2-oxybis(1-Chloropropane)	10 U	ug/l	10	10 U	ug/l	10
4-Methylphenol	10 U	ug/l	10	10 U	ug/l	10
N-Nitroso-di-n-propylamine	10 U	ug/l	10	10 U	ug/l	10
Hexachloroethane	10 U	ug/l	10	10 U	ug/l	10
Nitrobenzene	10 U	ug/l	10	10 U	ug/l	10
Isophorone	10 U	ug/l	10	10 U	ug/l	10
2-Nitrophenol	10 U	ug/l	10	10 U	ug/l	10
2,4-Dimethylphenol	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroethoxy) methane	10 U	ug/l	10	10 U	ug/l	10
2,4-Dichlorophenol	10 U	ug/l	10	10 U	ug/l	10
1,2,4-Trichlorobenzene	10 U	ug/l	10	10 U	ug/l	10
Naphthalene	10 U	ug/l	10	10 U	ug/l	10
4-Chloroaniline	10 U	ug/l	10	10 U	ug/l	10
Hexachlorobutadiene	10 U	ug/l	10	10 U	ug/l	10
4-Chloro-3-methylphenol	10 U	ug/l	10	10 U	ug/l	10
2-Methylnaphthalene	10 U	ug/l	10	10 U	ug/l	10
Hexachlorocyclopentadiene	10 UJ	ug/l	10	10 UJ	ug/l	10
2,4,6-Trichlorophenol	10 U	ug/l	10	10 U	ug/l	10
2,4,5-Trichlorophenol	25 U	ug/l	25	25 U	ug/l	25
2-Chloronaphthalene	10 U	ug/l	10	10 U	ug/l	10
2-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25
Dimethylphthalate	10 U	ug/l	10	10 U	ug/l	10
Acenaphthylene	10 U	ug/l	10	10 U	ug/l	10
2,6-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10
3-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25
Acenaphthene	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrophenol	25 U	ug/l	25	25 U	ug/l	25
4-Nitrophenol	25 U	ug/l	25	25 U	ug/l	25
Dibenzofuran	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10
Diethylphthalate	10 U	ug/l	10	10 U	ug/l	10
4-Chlorophenyl-phenylether	10 U	ug/l	10	10 U	ug/l	10
Fluorene	10 U	ug/l	10	10 U	ug/l	10

02/23/95 WHITING FIELD - INDUSTRIAL SITES 16:54:16
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90291003			90291001		
Site Locator	WHITING			WHITING		
Collect Date:	WHF33-4 14-DEC-93			WHF33-5 14-DEC-93		
	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS
	DL			DL		
4-Nitroaniline	25	U	ug/l	25	U	ug/l
4,6-Dinitro-2-methylphenol	25	U	ug/l	25	U	ug/l
N-Nitrosodiphenylamine (1)	10	U	ug/l	10	U	ug/l
4-Bromophenyl-phenylether	10	U	ug/l	10	U	ug/l
Hexachlorobenzene	10	U	ug/l	10	U	ug/l
Pentachlorophenol	25	U	ug/l	25	U	ug/l
Phenanthrene	10	U	ug/l	10	U	ug/l
Anthracene	10	U	ug/l	10	U	ug/l
Carbazole	10	U	ug/l	10	U	ug/l
Di-n-butylphthalate	10	U	ug/l	10	U	ug/l
Fluoranthene	10	U	ug/l	10	U	ug/l
Pyrene	10	U	ug/l	10	U	ug/l
Butylbenzylphthalate	10	U	ug/l	10	U	ug/l
3,3-Dichlorobenzidine	10	U	ug/l	10	U	ug/l
Benzo (a) anthracene	10	U	ug/l	10	U	ug/l
Chrysene	10	U	ug/l	10	U	ug/l
bis(2-Ethylhexyl) phthalate	10	U	ug/l	10	U	ug/l
Di-n-octylphthalate	10	U	ug/l	10	U	ug/l
Benzo (b) fluoranthene	10	U	ug/l	10	U	ug/l
Benzo (k) fluoranthene	10	U	ug/l	10	U	ug/l
Benzo (a) pyrene	10	U	ug/l	10	U	ug/l
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	U	ug/l
Dibenz (a,h) anthracene	10	U	ug/l	10	U	ug/l
Benzo (g,h,i) perylene	10	U	ug/l	10	U	ug/l

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - INDUSTRIAL SITES 17:22:42
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90331001			90331002			90330002			90325001		
Site Locator	WHITING	WHF3-1	WHITING	WHF3-1A	WHITING	WHF3-1B	WHITING	WHF3-1C	WHITING	WHF3-1D	WHITING	
Collect Date:	12-JAN-94		12-JAN-94		12-JAN-94		12-JAN-94		11-JAN-94			
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
CLP PESTICIDES/PCBS 90-SOW ug/l												
alpha-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05	R	ug/l	.05	.05
beta-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05	R	ug/l	.05	.05
delta-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05	R	ug/l	.05	.05
gamma-BHC (Lindane)	.05	U	ug/l	.05	.05	U	ug/l	.05	R	ug/l	.05	.05
Heptachlor	.05	U	ug/l	.05	.05	U	ug/l	.05	R	ug/l	.05	.05
Aldrin	.05	U	ug/l	.05	.05	U	ug/l	.05	R	ug/l	.05	.05
Heptachlor epoxide	.05	U	ug/l	.05	.05	U	ug/l	.05	R	ug/l	.05	.05
Endosulfan I	.05	U	ug/l	.05	.05	U	ug/l	.05	R	ug/l	.05	.05
Dieldrin	.1	U	ug/l	.1	.1	U	ug/l	.1	R	ug/l	.1	.1
4,4-DDE	.1	U	ug/l	.1	.1	U	ug/l	.1	R	ug/l	.1	.1
Endrin	.1	U	ug/l	.1	.1	U	ug/l	.1	R	ug/l	.1	.1
Endosulfan II	.1	U	ug/l	.1	.1	U	ug/l	.1	R	ug/l	.1	.1
4,4-DDD	.1	U	ug/l	.1	.1	U	ug/l	.1	R	ug/l	.1	.1
Endosulfan sulfate	.1	U	ug/l	.1	.1	U	ug/l	.1	R	ug/l	.1	.1
4,4-DDT	.1	U	ug/l	.1	.1	U	ug/l	.1	R	ug/l	.1	.1
Methoxychlor	.5	U	ug/l	.5	.5	U	ug/l	.5	R	ug/l	.5	.5
Endrin ketone	.1	U	ug/l	.1	.1	U	ug/l	.1	R	ug/l	.1	.1
Endrin aldehyde	.1	U	ug/l	.1	.1	U	ug/l	.1	R	ug/l	.1	.1
alpha-Chlordane	.05	U	ug/l	.05	.05	U	ug/l	.05	R	ug/l	.05	.05
gamma-Chlordane	.05	U	ug/l	.05	.05	U	ug/l	.05	R	ug/l	.05	.05
Toxaphene	5	U	ug/l	5	5	U	ug/l	5	R	ug/l	5	5
Aroclor-1016	1	U	ug/l	1	1	U	ug/l	1	R	ug/l	2	1
Aroclor-1221	2	U	ug/l	2	2	U	ug/l	2	R	ug/l	4	2
Aroclor-1232	1	U	ug/l	1	1	U	ug/l	1	R	ug/l	2	1
Aroclor-1242	1	U	ug/l	1	1	U	ug/l	1	R	ug/l	2	1
Aroclor-1248	1	U	ug/l	1	1	U	ug/l	1	R	ug/l	2	1
Aroclor-1254	1	U	ug/l	1	1	U	ug/l	1	R	ug/l	2	1
Aroclor-1260	1	U	ug/l	1	1	U	ug/l	1	R	ug/l	2	1

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - INDUSTRIAL SITES 17:22:42
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90333001			90333002			90299001			90334002		
Site Locator	WHITING			WHITING			WHITING			WHITING		
Collect Date:	WHF3-2			WHF3-2B			WHF3-2D			WHF3-3		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW ug/l												
alpha-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
beta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
delta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
gamma-BHC (Lindane)	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Heptachlor	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Aldrin	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Heptachlor epoxide	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Endosulfan I	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Dieldrin	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDE	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endrin	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endosulfan II	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDD	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endosulfan sulfate	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDT	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Methoxychlor	.5	UJ	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5
Endrin ketone	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endrin aldehyde	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
alpha-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
gamma-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Toxaphene	5	UJ	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Aroclor-1016	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1221	2	UJ	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Aroclor-1232	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1242	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1248	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1254	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1260	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1

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02/23/95 WHITING FIELD - INDUSTRIAL SITES 17:22:42
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90337003			90325002			90353005			90343001		
Site	WHITING			WHITING	WHITING			WHITING	WHITING			
Locator	WHF3-3B			WHF3-3D	WHF3-4	WHF3-4	WHF3-4	WHF3-7B	WHF3-7B	WHF3-7B	WHF3-7B	
Collect Date:	18-JAN-94			11-JAN-94			20-JAN-94			19-JAN-94		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW	ug/l											
alpha-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
beta-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
delta-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
gamma-BHC (Lindane)	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Heptachlor	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Aldrin	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Heptachlor epoxide	.28	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05
Endosulfan I	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Dieldrin	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDE	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endrin	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endosulfan II	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDD	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endosulfan sulfate	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDT	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Methoxychlor	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5
Endrin ketone	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endrin aldehyde	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
alpha-Chlordane	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
gamma-Chlordane	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Toxaphene	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5
Aroclor-1016	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1221	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Aroclor-1232	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1242	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1248	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1254	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1260	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1

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02/23/95 WHITING FIELD - INDUSTRIAL SITES 17:22:42
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90325003			90337004			90343002			90256001		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF3-7D			WHF3-7C			WHF4-1			WHF5-0W1		
Collect Date:	11-JAN-94			18-JAN-94			19-JAN-94			01-DEC-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW	ug/l											
alpha-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
beta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
delta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
gamma-BHC (Lindane)	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Heptachlor	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Aldrin	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Heptachlor epoxide	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Endosulfan I	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Dieldrin	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDE	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endrin	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endosulfan II	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDD	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endosulfan sulfate	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDT	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Methoxychlor	.5	UJ	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5
Endrin ketone	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endrin aldehyde	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
alpha-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
gamma-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Toxaphene	5	UJ	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Aroclor-1016	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1221	2	UJ	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Aroclor-1232	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1242	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1248	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1254	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1260	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE D = DOUBLE INTERMEDIATE SAMPLE E = DEEP SAMPLE

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02/23/95 WHITING FIELD - INDUSTRIAL SITES 17:22:42
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90265002			90253001			90359001			90359001RE		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF5-3			WHF5-8B			WHF5-8D			WHF5-8DRE		
Collect Date:	02-DEC-93			30-NOV-93			21-JAN-94			21-JAN-94		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW	ug/l											
alpha-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
beta-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
delta-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
gamma-BHC (Lindane)	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Aldrin	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor epoxide	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Endosulfan I	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Dieldrin	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDE	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Endrin	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan II	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDD	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan sulfate	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDT	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Methoxychlor	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	UJ	ug/l	.5
Endrin ketone	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Endrin aldehyde	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
alpha-Chlordane	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
gamma-Chlordane	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Toxaphene	5	U	ug/l	5	5	U	ug/l	5	5	UJ	ug/l	5
Aroclor-1016	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1221	2	U	ug/l	2	2	U	ug/l	2	2	UJ	ug/l	2
Aroclor-1232	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1242	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1248	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1254	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1260	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - INDUSTRIAL SITES 17:22:42
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90257001			90257002			90253002			90242001		
Site Locator	WHITING	WHITING	WHITING	WHF5-9B	WHF5-9A	WHF5-9D	WHF5-9B	WHF5-9D	WHITING	WHF5-10B	WHITING	
Collect Date:	01-DEC-93	01-DEC-93	30-NOV-93						19-NOV-93			
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
CLP PESTICIDES/PCBS 90-SOW	ug/l											
alpha-BHC	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 UJ	ug/l	.05	.05 U	ug/l	.05
beta-BHC	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 UJ	ug/l	.05	.05 U	ug/l	.05
delta-BHC	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 UJ	ug/l	.05	.05 U	ug/l	.05
gamma-BHC (Lindane)	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 UJ	ug/l	.05	.05 U	ug/l	.05
Heptachlor	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 UJ	ug/l	.05	.05 U	ug/l	.05
Aldrin	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 UJ	ug/l	.05	.05 U	ug/l	.05
Heptachlor epoxide	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 UJ	ug/l	.05	.05 U	ug/l	.05
Endosulfan I	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 UJ	ug/l	.05	.05 U	ug/l	.05
Dieldrin	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 UJ	ug/l	.1	.1 U	ug/l	.1
4,4-DDE	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 UJ	ug/l	.1	.1 U	ug/l	.1
Endrin	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 UJ	ug/l	.1	.1 U	ug/l	.1
Endosulfan II	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 UJ	ug/l	.1	.1 U	ug/l	.1
4,4-DDD	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 UJ	ug/l	.1	.1 U	ug/l	.1
Endosulfan sulfate	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 UJ	ug/l	.1	.1 U	ug/l	.1
4,4-DDT	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 UJ	ug/l	.1	.1 U	ug/l	.1
Methoxychlor	.5 U	ug/l	.5	.5 U	ug/l	.5	.5 UJ	ug/l	.5	.5 U	ug/l	.5
Endrin ketone	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 UJ	ug/l	.1	.1 U	ug/l	.1
Endrin aldehyde	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 UJ	ug/l	.1	.1 U	ug/l	.1
alpha-Chlordane	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 UJ	ug/l	.05	.05 U	ug/l	.05
gamma-Chlordane	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 UJ	ug/l	.05	.05 U	ug/l	.05
Toxaphene	5 U	ug/l	5	5 U	ug/l	5	5 UJ	ug/l	5	5 U	ug/l	5
Aroclor-1016	1 U	ug/l	1	1 U	ug/l	1	1 UJ	ug/l	1	1 U	ug/l	1
Aroclor-1221	2 U	ug/l	2	2 U	ug/l	2	2 UJ	ug/l	2	2 U	ug/l	2
Aroclor-1232	1 U	ug/l	1	1 U	ug/l	1	1 UJ	ug/l	1	1 U	ug/l	1
Aroclor-1242	1 U	ug/l	1	1 U	ug/l	1	1 UJ	ug/l	1	1 U	ug/l	1
Aroclor-1248	1 U	ug/l	1	1 U	ug/l	1	1 UJ	ug/l	1	1 U	ug/l	1
Aroclor-1254	1 U	ug/l	1	1 U	ug/l	1	1 UJ	ug/l	1	1 U	ug/l	1
Aroclor-1260	1 U	ug/l	1	1 U	ug/l	1	1 UJ	ug/l	1	1 U	ug/l	1

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

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02/23/95 WHITING FIELD - INDUSTRIAL SITES 17:22:42
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90240003			90240001			90240001RE			90236004		
Site Locator	WHITING			WHITING			WHITING			WHITING		
Collect Date:	WHF5-10D			WHF6-1B			WHF6-1BRE			WHF6-1D		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW	ug/l											
alpha-BHC	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
beta-BHC	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
delta-BHC	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
gamma-BHC (Lindane)	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Aldrin	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor epoxide	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Endosulfan I	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Dieldrin	.1	U	ug/l	.1	.038	J	ug/l	.1	.047	J	ug/l	.1
4,4-DDE	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endrin	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan II	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDD	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan sulfate	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDT	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Methoxychlor	.5	U	ug/l	.5	.5	UJ	ug/l	.5	.5	UJ	ug/l	.5
Endrin ketone	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endrin aldehyde	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
alpha-Chlordane	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
gamma-Chlordane	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Toxaphene	5	U	ug/l	5	5	UJ	ug/l	5	5	UJ	ug/l	5
Aroclor-1016	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1221	2	U	ug/l	2	2	UJ	ug/l	2	2	UJ	ug/l	2
Aroclor-1232	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1242	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1248	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1254	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1260	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1

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02/23/95 WHITING FIELD - INDUSTRIAL SITES 17:22:42
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90240002	Site	WHITING	Locator	WHF6-3	Collect Date:	18-NOV-93	90265003	WHITING	WHF7-1	02-DEC-93	90285001	WHITING	WHF8-1	09-DEC-93	90278002	WHITING	WHF29-1	07-DEC-93
	VALUE	QUAL UNITS	DL		VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL			
CLP PESTICIDES/PCBS 90-SOW ug/l																			
alpha-BHC	.05	U	ug/l	.05	.25	U	ug/l	.25	.05	U	ug/l	.05	.05	U	ug/l	.05			
beta-BHC	.05	U	ug/l	.05	.25	U	ug/l	.25	.05	U	ug/l	.05	.05	U	ug/l	.05			
delta-BHC	.05	U	ug/l	.05	.25	U	ug/l	.25	.05	U	ug/l	.05	.05	U	ug/l	.05			
gamma-BHC (Lindane)	.05	U	ug/l	.05	.25	U	ug/l	.25	.05	U	ug/l	.05	.05	U	ug/l	.05			
Heptachlor	.05	U	ug/l	.05	.25	U	ug/l	.25	.05	U	ug/l	.05	.05	U	ug/l	.05			
Aldrin	.05	U	ug/l	.05	.25	U	ug/l	.25	.05	U	ug/l	.05	.05	U	ug/l	.05			
Heptachlor epoxide	.05	U	ug/l	.05	.25	U	ug/l	.25	.05	U	ug/l	.05	.05	U	ug/l	.05			
Endosulfan I	.05	U	ug/l	.05	.25	U	ug/l	.25	.05	U	ug/l	.05	.05	U	ug/l	.05			
Dieldrin	.04	J	ug/l	.1	.5	U	ug/l	.5	.1	U	ug/l	.1	.1	U	ug/l	.1			
4,4-DDE	.1	U	ug/l	.1	.5	U	ug/l	.5	.1	U	ug/l	.1	.1	U	ug/l	.1			
Endrin	.1	U	ug/l	.1	.5	U	ug/l	.5	.1	U	ug/l	.1	.1	U	ug/l	.1			
Endosulfan II	.1	U	ug/l	.1	.5	U	ug/l	.5	.1	U	ug/l	.1	.1	U	ug/l	.1			
4,4-DDD	.1	U	ug/l	.1	.5	U	ug/l	.5	.1	U	ug/l	.1	.1	U	ug/l	.1			
Endosulfan sulfate	.1	U	ug/l	.1	.5	U	ug/l	.5	.1	U	ug/l	.1	.1	U	ug/l	.1			
4,4-DDT	.1	U	ug/l	.1	.5	U	ug/l	.5	.1	U	ug/l	.1	.1	U	ug/l	.1			
Methoxychlor	.5	U	ug/l	.5	2.5	U	ug/l	2.5	.5	U	ug/l	.5	.5	U	ug/l	.5			
Endrin ketone	.1	U	ug/l	.1	.5	U	ug/l	.5	.1	U	ug/l	.1	.1	U	ug/l	.1			
Endrin aldehyde	.1	U	ug/l	.1	.5	U	ug/l	.5	.1	U	ug/l	.1	.1	U	ug/l	.1			
alpha-Chlordane	.05	U	ug/l	.05	.25	U	ug/l	.25	.05	U	ug/l	.05	.05	U	ug/l	.05			
gamma-Chlordane	.05	U	ug/l	.05	.25	U	ug/l	.25	.05	U	ug/l	.05	.05	U	ug/l	.05			
Toxaphene	5	U	ug/l	5	25	U	ug/l	25	5	U	ug/l	5	5	U	ug/l	5			
Aroclor-1016	1	U	ug/l	1	5	U	ug/l	5	1	U	ug/l	1	1	U	ug/l	1			
Aroclor-1221	2	U	ug/l	2	10	U	ug/l	10	2	U	ug/l	2	2	U	ug/l	2			
Aroclor-1232	1	U	ug/l	1	5	U	ug/l	5	1	U	ug/l	1	1	U	ug/l	1			
Aroclor-1242	1	U	ug/l	1	5	U	ug/l	5	1	U	ug/l	1	1	U	ug/l	1			
Aroclor-1248	1	U	ug/l	1	5	U	ug/l	5	1	U	ug/l	1	1	U	ug/l	1			
Aroclor-1254	1	U	ug/l	1	5	U	ug/l	5	1	U	ug/l	1	1	U	ug/l	1			
Aroclor-1260	1	U	ug/l	1	5	U	ug/l	5	1	U	ug/l	1	1	U	ug/l	1			

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02/23/95 WHITING FIELD - INDUSTRIAL SITES 17:22:42
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90280002			90280003			90280004			90280005		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF29-2			WHF29-3			WHF29-3A			WHF29-4		
Collect Date:	08-DEC-93			08-DEC-93			08-DEC-93			08-DEC-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOM	ug/l											
alpha-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
beta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
delta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
gamma-BHC (Lindane)	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Heptachlor	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Aldrin	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Heptachlor epoxide	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Endosulfan I	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Dieldrin	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDE	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endrin	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endosulfan II	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDD	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endosulfan sulfate	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDT	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Methoxychlor	.5	UJ	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5
Endrin ketone	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endrin aldehyde	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
alpha-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
gamma-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Toxaphene	5	UJ	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Aroclor-1016	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1221	2	UJ	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Aroclor-1232	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1242	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1248	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1254	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1260	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1

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02/23/95 WHITING FIELD - INDUSTRIAL SITES 17:22:42
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90278001			90285003			90286002			90289002		
Site Locator	WHITING			WHITING			WHITING			WHITING		
Collect Date:	07-DEC-93			09-DEC-93			10-DEC-93			13-DEC-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW	ug/l											
alpha-BHC	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
beta-BHC	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
delta-BHC	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
gamma-BHC (Lindane)	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Heptachlor	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Aldrin	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Heptachlor epoxide	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Endosulfan I	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Dieldrin	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
4,4-DDE	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
Endrin	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
Endosulfan II	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
4,4-DDD	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
Endosulfan sulfate	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
4,4-DDT	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
Methoxychlor	.5	U	ug/l	.5	.5	UJ	ug/l	.5	.5	U	ug/l	.5
Endrin ketone	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
Endrin aldehyde	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
alpha-Chlordane	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
gamma-Chlordane	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Toxaphene	5	U	ug/l	5	5	UJ	ug/l	5	5	U	ug/l	5
Aroclor-1016	1	U	ug/l	1	1	UJ	ug/l	1	1	U	ug/l	1
Aroclor-1221	2	U	ug/l	2	2	UJ	ug/l	2	2	U	ug/l	2
Aroclor-1232	1	U	ug/l	1	1	UJ	ug/l	1	1	U	ug/l	1
Aroclor-1242	1	U	ug/l	1	1	UJ	ug/l	1	1	U	ug/l	1
Aroclor-1248	1	U	ug/l	1	1	UJ	ug/l	1	1	U	ug/l	1
Aroclor-1254	1	U	ug/l	1	1	UJ	ug/l	1	1	U	ug/l	1
Aroclor-1260	1	U	ug/l	1	1	UJ	ug/l	1	1	U	ug/l	1

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE D = DOUBLE INTERMEDIATE SAMPLE E = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - INDUSTRIAL SITES 17:22:42
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90285002			90353003			90353004			90353004RE		
Site Locator	WHITING			WHITING			WHITING			WHITING		
Collect Date:	09-DEC-93			20-JAN-94			20-JAN-94			20-JAN-94		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW	ug/l											
alpha-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
beta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
delta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
gamma-BHC (Lindane)	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Heptachlor	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Aldrin	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Heptachlor epoxide	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Endosulfan I	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Dieldrin	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDE	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endrin	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endosulfan II	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDD	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endosulfan sulfate	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDT	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Methoxychlor	.5	UJ	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5
Endrin ketone	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endrin aldehyde	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
alpha-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
gamma-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Toxaphene	5	UJ	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Aroclor-1016	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1221	2	UJ	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Aroclor-1232	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1242	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1248	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1254	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1260	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1

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02/23/95 WHITING FIELD - INDUSTRIAL SITES 17:22:42
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90343003			90343005			90353006			90353002		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF32-2			WHF32-3			WHF32-4			WHF32-5		
Collect Date:	19-JAN-94			19-JAN-94			20-JAN-94			20-JAN-94		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW	ug/l											
alpha-BHC	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
beta-BHC	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
delta-BHC	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
gamma-BHC (Lindane)	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Aldrin	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor epoxide	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Endosulfan I	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Dieldrin	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDE	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endrin	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan II	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDD	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan sulfate	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDT	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Methoxychlor	.5	U	ug/l	.5	.5	UJ	ug/l	.5	.5	UJ	ug/l	.5
Endrin ketone	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endrin aldehyde	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
alpha-Chlordane	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
gamma-Chlordane	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Toxaphene	5	U	ug/l	5	5	UJ	ug/l	5	5	UJ	ug/l	5
Aroclor-1016	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1221	2	U	ug/l	2	2	UJ	ug/l	2	2	UJ	ug/l	2
Aroclor-1232	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1242	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1248	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1254	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1260	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1

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02/23/95 WHITING FIELD - INDUSTRIAL SITES 17:22:42
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90320003	90320004	90291002	90320002							
Site	WHITING	WHITING	WHITING	WHITING							
Locator	WHF33-1	WHF33-1A	WHF33-2	WHF33-3							
Collect Date:	10-JAN-94	10-JAN-94	14-DEC-93	10-JAN-94							
	VALUE	QUAL UNITS	DL	VALUE							
CLP PESTICIDES/PCBS 90-SOW	ug/l										
alpha-BHC	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05 U	ug/l	.05
beta-BHC	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05 U	ug/l	.05
delta-BHC	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05 U	ug/l	.05
gamma-BHC (Lindane)	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05 U	ug/l	.05
Heptachlor	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05 U	ug/l	.05
Aldrin	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05 U	ug/l	.05
Heptachlor epoxide	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05 U	ug/l	.05
Endosulfan I	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05 U	ug/l	.05
Dieldrin	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1 U	ug/l	.1
4,4-DDE	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1 U	ug/l	.1
Endrin	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1 U	ug/l	.1
Endosulfan II	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1 U	ug/l	.1
4,4-DDD	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1 U	ug/l	.1
Endosulfan sulfate	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1 U	ug/l	.1
4,4-DDT	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1 U	ug/l	.1
Methoxychlor	.5 U	ug/l	.5	.5 U	ug/l	.5	.5 U	ug/l	.5 U	ug/l	.5
Endrin ketone	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1 U	ug/l	.1
Endrin aldehyde	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1 U	ug/l	.1
alpha-Chlordane	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05 U	ug/l	.05
gamma-Chlordane	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05 U	ug/l	.05
Toxaphene	5 U	ug/l	5	5 U	ug/l	5	5 U	ug/l	5 U	ug/l	5
Aroclor-1016	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1 U	ug/l	1
Aroclor-1221	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2 U	ug/l	2
Aroclor-1232	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1 U	ug/l	1
Aroclor-1242	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1 U	ug/l	1
Aroclor-1248	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1 U	ug/l	1
Aroclor-1254	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1 U	ug/l	1
Aroclor-1260	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1 U	ug/l	1

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02/23/95 WHITING FIELD - INDUSTRIAL SITES 17:22:42
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90291003				90291001				90291001RE			
Site	WHITING				WHITING				WHITING			
Locator	WHF33-4				WHF33-5				WHF33-5RE			
Collect Date:	14-DEC-93				14-DEC-93				14-DEC-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW	ug/l											
alpha-BHC	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
beta-BHC	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
delta-BHC	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
gamma-BHC (Lindane)	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Aldrin	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor epoxide	.05	U	ug/l	.05	.035	J	ug/l	.05	.042	J	ug/l	.05
Endosulfan I	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Dieldrin	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDE	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endrin	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan II	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDD	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan sulfate	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDT	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Methoxychlor	.5	U	ug/l	.5	.5	UJ	ug/l	.5	.5	UJ	ug/l	.5
Endrin ketone	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endrin aldehyde	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
alpha-Chlordane	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
gamma-Chlordane	.05	U	ug/l	.05	.031	J	ug/l	.05	.029	J	ug/l	.05
Toxaphene	5	U	ug/l	5	5	UJ	ug/l	5	5	UJ	ug/l	5
Aroclor-1016	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1221	2	U	ug/l	2	2	UJ	ug/l	2	2	UJ	ug/l	2
Aroclor-1232	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1242	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1248	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1254	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1260	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1

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02/23/95 WHITING FIELD - INDUSTRIAL SITES 17:44:33
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90331001			90331002			90330002			90325001		
Site Locator	WHITING	WHITING	WHITING									
Collect Date:	WHD3-1	WHD3-1A	WHD3-1B	WHD3-1D	WHD3-1E	WHD3-1F	WHD3-1G	WHD3-1H	WHD3-1I	WHD3-1J	WHD3-1K	
	VALUE	QUAL UNITS	DL									
CLP METALS AND CYANIDE ug/l												
Aluminum	48.8 UJ	ug/l	200	57.9 UJ	ug/l	200	195 J	ug/l	200	49.8 J	ug/l	200
Antimony	20.7 U	ug/l	60									
Arsenic	1.6 U	ug/l	10	1.6 U	ug/l	10	16.3	ug/l	10	1.6 U	ug/l	10
Barium	37.4 J	ug/l	200	37.9 J	ug/l	200	66.8 J	ug/l	200	10.8 J	ug/l	200
Beryllium	.2 U	ug/l	5									
Cadmium	17.8	ug/l	5	18.8	ug/l	5	13.2	ug/l	5	5.7	ug/l	5
Calcium	6190	ug/l	5000	6410	ug/l	5000	10900	ug/l	5000	2550 J	ug/l	5000
Chromium	3.3 U	ug/l	10	3.3 U	ug/l	10	3.3 U	ug/l	10	4.6 J	ug/l	10
Cobalt	4.1 U	ug/l	50									
Copper	2.9 UJ	ug/l	25	3.4 UJ	ug/l	25	3 J	ug/l	25	2.1 U	ug/l	25
Iron	368	ug/l	100	364	ug/l	100	31100	ug/l	100	79.9 J	ug/l	100
Lead	14.8	ug/l	3	17.5	ug/l	3	201	ug/l	3	1 U	ug/l	3
Magnesium	722 J	ug/l	5000	715 J	ug/l	5000	7830	ug/l	5000	364 J	ug/l	5000
Manganese	33.5	ug/l	15	33.3	ug/l	15	99.6	ug/l	15	19.6	ug/l	15
Mercury	.15 U	ug/l	.2									
Nickel	9 U	ug/l	40	9 U	ug/l	40	9.9 J	ug/l	40	9 U	ug/l	40
Potassium	3900 J	ug/l	5000	4660 J	ug/l	5000	7090	ug/l	5000	2480 J	ug/l	5000
Selenium	.2 U	ug/l	5									
Silver	2.7 UJ	ug/l	10	2.7 UJ	ug/l	10	2.7 U	ug/l	10	2.7 U	ug/l	10
Sodium	4310 J	ug/l	5000	4640 J	ug/l	5000	6760	ug/l	5000	2890 J	ug/l	5000
Thallium	.88 U	ug/l	10									
Vanadium	2.5 U	ug/l	50									
Zinc	12.2 UJ	ug/l	20	13.3 UJ	ug/l	20	14.8 J	ug/l	20	11.8 J	ug/l	20
Cyanide	1.7 U	ug/l	10	2.4 UJ	ug/l	10	1.7 U	ug/l	10	1.9 J	ug/l	10

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02/23/95 WHITING FIELD - INDUSTRIAL SITES 17:44:33
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90333001			90333002			90299001			90334002		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF3-2			WHF3-2B			WHF3-2D			WHF3-3		
Collect Date:	13-JAN-94			13-JAN-94			16-DEC-93			14-JAN-94		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE	ug/l											
Aluminum	76.1 J	ug/l	200	10800	ug/l	200	3570 J	ug/l	200	328	ug/l	200
Antimony	20.7 U	ug/l	60	20.7 U	ug/l	60	10.4 U	ug/l	60	21.8 U	ug/l	60
Arsenic	1.6 U	ug/l	10	1.6 U	ug/l	10	1 UJ	ug/l	10	1.6 U	ug/l	10
Barium	27.9 J	ug/l	200	47.8 J	ug/l	200	26.4 J	ug/l	200	25.3 J	ug/l	200
Beryllium	.2 U	ug/l	5	.86 J	ug/l	5	.12 U	ug/l	5	.1 U	ug/l	5
Cadmium	34.4	ug/l	5	7	ug/l	5	6.2	ug/l	5	29.9	ug/l	5
Calcium	1810 J	ug/l	5000	3460 J	ug/l	5000	2750 J	ug/l	5000	967 J	ug/l	5000
Chromium	3.3 U	ug/l	10	82.4	ug/l	10	8.1 J	ug/l	10	2 U	ug/l	10
Cobalt	4.1 U	ug/l	50	4.1 U	ug/l	50	2.1 U	ug/l	50	2.7 U	ug/l	50
Copper	2.1 U	ug/l	25	23.6 J	ug/l	25	6.1 UJ	ug/l	25	1.9 U	ug/l	25
Iron	112	ug/l	100	57300	ug/l	100	3600 J	ug/l	100	293	ug/l	100
Lead	.1 U	ug/l	3	6.6	ug/l	3	2.8 J	ug/l	3	2.9 J	ug/l	3
Magnesium	731 J	ug/l	5000	1140 J	ug/l	5000	533 J	ug/l	5000	682 J	ug/l	5000
Manganese	5.6 J	ug/l	15	39.1	ug/l	15	55	ug/l	15	9.8 J	ug/l	15
Mercury	.15 U	ug/l	.2	19.8	ug/l	.2	.13 U	ug/l	.2	.15 U	ug/l	.2
Nickel	.9 U	ug/l	40	26.4 J	ug/l	40	3.9 U	ug/l	40	11.6 U	ug/l	40
Potassium	2460 J	ug/l	5000	3710 J	ug/l	5000	572 U	ug/l	5000	2110 J	ug/l	5000
Selenium	.2 U	ug/l	5	.2 U	ug/l	5	1.5 U	ug/l	.5	2 U	ug/l	5
Silver	2.7 U	ug/l	10	3.2 J	ug/l	10	2.2 U	ug/l	10	2 U	ug/l	10
Sodium	3350 J	ug/l	5000	2860 J	ug/l	5000	6070	ug/l	5000	2020 J	ug/l	5000
Thallium	.88 U	ug/l	10	.88 U	ug/l	10	1.4 UJ	ug/l	10	.88 UJ	ug/l	10
Vanadium	2.5 U	ug/l	50	114	ug/l	50	6.9 J	ug/l	50	3 U	ug/l	50
Zinc	10.5 J	ug/l	20	35.4	ug/l	20	24 UJ	ug/l	20	7.8 J	ug/l	20
Cyanide	1.7 U	ug/l	10	1.7 U	ug/l	10	1.2 U	ug/l	10	1.7 U	ug/l	10

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITY/ LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - INDUSTRIAL SITES 17:44:33
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90337003			90325002			90353005			90343001		
Site	WHITING			WHITING		<th>WHITING</th> <td></td> <td><th>WHITING</th><td></td><td></td></td>	WHITING		<th>WHITING</th> <td></td> <td></td>	WHITING		
Locator	WHF3-3B			WHF3-3D		<th>WHF3-4</th> <td></td> <td><th>WHF3-7B</th><td></td><td></td></td>	WHF3-4		<th>WHF3-7B</th> <td></td> <td></td>	WHF3-7B		
Collect Date:	18-JAN-94			11-JAN-94		<th>20-JAN-94</th> <td></td> <td><th>19-JAN-94</th><td></td><td></td></td>	20-JAN-94		<th>19-JAN-94</th> <td></td> <td></td>	19-JAN-94		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE ug/l												
Aluminum	3230	ug/l	200		455	ug/l	200		779	ug/l	200	
Antimony	21.8 U	ug/l	60		20.7 U	ug/l	60		21.8 U	ug/l	60	
Arsenic	.16 U	ug/l	10		1.6 U	ug/l	10		6.1 J	ug/l	10	
Barium	59.6 J	ug/l	200		22.6 J	ug/l	200		80.7 J	ug/l	200	
Beryllium	.1 U	ug/l	5		.2 U	ug/l	5		.1 U	ug/l	5	
Cadmium	3.9 J	ug/l	5		3.6 J	ug/l	5		9.3	ug/l	5	
Calcium	1500 J	ug/l	5000		4750 J	ug/l	5000		13300	ug/l	5000	
Chromium	22	ug/l	10		4.2 J	ug/l	10		9.1 J	ug/l	10	
Cobalt	2.7 U	ug/l	50		4.1 U	ug/l	50		2.7 U	ug/l	50	
Copper	10.4 J	ug/l	25		2.1 U	ug/l	25		2.5 J	ug/l	25	
Iron	15800	ug/l	100		530	ug/l	100		24500	ug/l	100	
Lead	.23 J	ug/l	3		1 U	ug/l	3		126	ug/l	3	
Magnesium	1330 J	ug/l	5000		495 J	ug/l	5000		4650 J	ug/l	5000	
Manganese	45.7	ug/l	15		40.2	ug/l	15		96.4	ug/l	15	
Mercury	.16 J	ug/l	.2		.15 U	ug/l	.2		.15 U	ug/l	.2	
Nickel	11.6 U	ug/l	40		9 U	ug/l	40		11.6 U	ug/l	40	
Potassium	822 J	ug/l	5000		2140 J	ug/l	5000		3040 J	ug/l	5000	
Selenium	2 U	ug/l	5		2 U	ug/l	5		2.6 J	ug/l	5	
Silver	2 U	ug/l	10		2.7 U	ug/l	10		2 U	ug/l	10	
Sodium	2620 J	ug/l	5000		4690 J	ug/l	5000		4070 J	ug/l	5000	
Thallium	.88 UJ	ug/l	10		.88 U	ug/l	10		.88 UJ	ug/l	10	
Vanadium	36.4 J	ug/l	50		2.5 U	ug/l	50		4.6 J	ug/l	50	
Zinc	9.4 J	ug/l	20		8.2 J	ug/l	20		8.8 J	ug/l	20	
Cyanide	1.7 U	ug/l	10		2.4 J	ug/l	10		1.7 U	ug/l	10	

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02/23/95 WHITING FIELD - INDUSTRIAL SITES 17:44:33
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90325003	90337004	90343002	90256001								
Site	WHITING	WHITING	WHITING	WHITING								
Locator	WHF3-7D	WHF3-7C	WHF4-1	WHF5-0W1								
Collect Date:	11-JAN-94	18-JAN-94	19-JAN-94	01-DEC-93								
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP METALS AND CYANIDE

ug/l

Aluminum	1400	ug/l	200	87.7 J	ug/l	200	21.9 U	ug/l	200	1440	ug/l	200
Antimony	20.7 U	ug/l	60	21.8 U	ug/l	60	21.8 U	ug/l	60	20.7 U	ug/l	60
Arsenic	1.6 U	ug/l	10	1.6 U	ug/l	10	4.2 J	ug/l	10	1.7 J	ug/l	10
Barium	22.6 J	ug/l	200	27.2 J	ug/l	200	39.4 J	ug/l	200	42.5 J	ug/l	200
Beryllium	.2 U	ug/l	5	.1 U	ug/l	5	.1 U	ug/l	5	.2 U	ug/l	5
Cadmium	10.9	ug/l	5	3.6 U	ug/l	5	3.6 U	ug/l	5	4.5 J	ug/l	5
Calcium	1260 J	ug/l	5000	2520 J	ug/l	5000	592 J	ug/l	5000	4680 J	ug/l	5000
Chromium	3.3 U	ug/l	10	2 U	ug/l	10	2 U	ug/l	10	7.4 J	ug/l	10
Cobalt	4.1 U	ug/l	50	2.7 U	ug/l	50	2.7 U	ug/l	50	9.2 J	ug/l	50
Copper	2.9 J	ug/l	25	1.9 U	ug/l	25	1.9 U	ug/l	25	6.1 J	ug/l	25
Iron	2350	ug/l	100	258	ug/l	100	13100	ug/l	100	3600	ug/l	100
Lead	1.3 J	ug/l	3	1.9 J	ug/l	3	1 U	ug/l	3	4.3	ug/l	3
Magnesium	659 J	ug/l	5000	619 J	ug/l	5000	825 J	ug/l	5000	1210 J	ug/l	5000
Manganese	16.9	ug/l	15	17.8	ug/l	15	95.8	ug/l	15	124	ug/l	15
Mercury	.15 U	ug/l	.2									
Nickel	.9 U	ug/l	40	11.6 U	ug/l	40	11.6 U	ug/l	40	9 U	ug/l	40
Potassium	2180 J	ug/l	5000	13900	ug/l	5000	373 U	ug/l	5000	11000	ug/l	5000
Selenium	2 U	ug/l	5									
Silver	2.7 U	ug/l	10	2 U	ug/l	10	2 U	ug/l	10	2.7 U	ug/l	10
Sodium	2460 J	ug/l	5000	3080 J	ug/l	5000	1790 J	ug/l	5000	2940 J	ug/l	5000
Thallium	.88 U	ug/l	10	.88 UJ	ug/l	10	.88 UJ	ug/l	10	.88 U	ug/l	10
Vanadium	3.2 J	ug/l	50	3 U	ug/l	50	3 U	ug/l	50	5.7 J	ug/l	50
Zinc	10.8 J	ug/l	20	4.1 J	ug/l	20	.98 J	ug/l	20	32.8	ug/l	20
Cyanide	1.7 U	ug/l	10									

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02/23/95 WHITING FIELD - INDUSTRIAL SITES 17:44:33
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90265002			90253001			90359001			90257001		
Site Locator	WHITING	WHITING	WHITING									
Collect Date:	02-DEC-93			30-NOV-93			21-JAN-94			01-DEC-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE ug/l												
Aluminum	189 J	ug/l	200		29500	ug/l	200		4340	ug/l	200	
Antimony	20.7 U	ug/l	60		23 J	ug/l	60		21.8 U	ug/l	60	
Arsenic	1.6 U	ug/l	10		3.6 J	ug/l	10		1.6 U	ug/l	10	
Barium	92 J	ug/l	200		636	ug/l	200		75.7 J	ug/l	200	
Beryllium	.2 U	ug/l	5		2.9 J	ug/l	5		.34 J	ug/l	5	
Cadmium	29.7	ug/l	5		6.1	ug/l	5		6.4	ug/l	5	
Calcium	15400	ug/l	5000		7590	ug/l	5000		4040 J	ug/l	5000	
Chromium	3.3 U	ug/l	10		123	ug/l	10		7.6 J	ug/l	10	
Cobalt	4.1 U	ug/l	50		8.8 J	ug/l	50		2.7 U	ug/l	50	
Copper	2.5 J	ug/l	25		55.3	ug/l	25		4.6 J	ug/l	25	
Iron	180	ug/l	100		34800	ug/l	100		4000	ug/l	100	
Lead	3.6	ug/l	3		30.5	ug/l	3		8.2	ug/l	3	
Magnesium	1320 J	ug/l	5000		6170	ug/l	5000		1180 J	ug/l	5000	
Manganese	33.3	ug/l	15		109	ug/l	15		171	ug/l	15	
Mercury	.84	ug/l	.2		.15 U	ug/l	.2		.15 U	ug/l	.2	
Nickel	9 U	ug/l	40		27.2 J	ug/l	40		11.6 U	ug/l	40	
Potassium	614 U	ug/l	5000		4110 J	ug/l	5000		1500 J	ug/l	5000	
Selenium	2 U	ug/l	5		2 U	ug/l	5		2 U	ug/l	5	
Silver	2.7 U	ug/l	10		4.4 J	ug/l	10		2 U	ug/l	10	
Sodium	2580 J	ug/l	5000		11400	ug/l	5000		14800	ug/l	5000	
Thallium	.88 U	ug/l	10		.88 U	ug/l	10		.88 U	ug/l	10	
Vanadium	2.5 U	ug/l	50		117	ug/l	50		6.4 J	ug/l	50	
Zinc	23.8	ug/l	20		308	ug/l	20		17.1 J	ug/l	20	
Cyanide	1.7 U	ug/l	10		1.7 UJ	ug/l	10		1.7 U	ug/l	10	

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02/23/95 WHITING FIELD - INDUSTRIAL SITES 17:44:33
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90257002	Site	WHITING	Locator	WHF5-9BA	Collect Date:	01-DEC-93	90253002	WHITING	WHF5-9D	30-NOV-93	90242001	WHITING	WHF5-10B	19-NOV-93	90240003	WHITING	WHF5-10D	18-NOV-93
	VALUE	QUAL UNITS	DL		VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL			
CLP METALS AND CYANIDE ug/l																			
Aluminum	1890 J	ug/l	200	359	ug/l	200	746	ug/l	200	444	ug/l	200	20.7 U	ug/l	60	20.7 U	ug/l	60	
Antimony	20.7 U	ug/l	60	20.7 U	ug/l	60	20.7 U	ug/l	60	20.7 U	ug/l	60	1.6 U	ug/l	10	1.6 U	ug/l	10	
Arsenic	1.6 U	ug/l	10	1.6 U	ug/l	10	1.6 U	ug/l	10	1.6 U	ug/l	10	.2 U	ug/l	5	.2 U	ug/l	5	
Barium	64.5 J	ug/l	200	19.6 J	ug/l	200	47.2 J	ug/l	200	31.4 J	ug/l	200	32.6 ug/l	ug/l	5	32.6 ug/l	ug/l	5	
Beryllium	.2 U	ug/l	5	.2 U	ug/l	5	.2 U	ug/l	5	.2 U	ug/l	5	5 J	ug/l	5	5 J	ug/l	5	
Cadmium	3.2 U	ug/l	5	3.4 J	ug/l	5	32.6 ug/l	ug/l	5	5 J	ug/l	5	2410 J	ug/l	5000	2410 J	ug/l	5000	
Calcium	2380 J	ug/l	5000	1520 J	ug/l	5000	2760 J	ug/l	5000	791 J	ug/l	100	11.2 UJ	ug/l	10	3.3 U	ug/l	10	
Chromium	11.2 UJ	ug/l	10	6.5 J	ug/l	10	12.2 ug/l	ug/l	10	4.4 J	ug/l	50	4.1 U	ug/l	50	4.1 U	ug/l	50	
Cobalt	4.1 U	ug/l	50	6.2 J	ug/l	50	4.1 U	ug/l	50	4 J	ug/l	25	8.4 UJ	ug/l	25	8.4 UJ	ug/l	25	
Copper	8.4 UJ	ug/l	25	5.5 J	ug/l	25	5.9 J	ug/l	25	791 J	ug/l	100	5740 J	ug/l	100	5740 J	ug/l	100	
Iron	5740 J	ug/l	100	1140	ug/l	100	1070	ug/l	100	2.1 J	ug/l	3	2.8 J	ug/l	3	2.8 J	ug/l	3	
Lead	2.8 J	ug/l	3	1.5 J	ug/l	5	3.1 ug/l	ug/l	3	.15 U	ug/l	.2	1610 J	ug/l	5000	844 J	ug/l	5000	
Magnesium	1610 J	ug/l	5000	434 J	ug/l	5000	1060 J	ug/l	5000	108 ug/l	ug/l	15	38.9 ug/l	ug/l	15	108 ug/l	ug/l	15	
Manganese	38.9 ug/l	ug/l	15	66.4 ug/l	ug/l	15	13.7 J	ug/l	15	.15 U	ug/l	.2	.15 U	ug/l	.2	.15 U	ug/l	.2	
Mercury	.15 U	ug/l	.2	.15 U	ug/l	.2	2 ug/l	ug/l	.2	9 ug/l	ug/l	40	9 ug/l	ug/l	40	9 ug/l	ug/l	40	
Nickel	9 U	ug/l	40	9 U	ug/l	40	9 U	ug/l	40	1510 UJ	ug/l	5000	1060 J	ug/l	5000	706 J	ug/l	5000	
Potassium	1510 UJ	ug/l	5000	1060 J	ug/l	5000	8300 ug/l	ug/l	5000	2 UJ	ug/l	5	2 UJ	ug/l	5	2.2 J	ug/l	5	
Selenium	2 UJ	ug/l	5	2 U	ug/l	5	2 U	ug/l	5	2.7 U	ug/l	10	2.7 U	ug/l	10	2.7 U	ug/l	10	
Silver	2.7 U	ug/l	10	3.8 J	ug/l	10	2.7 U	ug/l	10	4380 J	ug/l	5000	9850 ug/l	ug/l	5000	6510 ug/l	ug/l	5000	
Sodium	4380 J	ug/l	5000	3040 J	ug/l	5000	9850 ug/l	ug/l	5000	.88 U	ug/l	10	.88 U	ug/l	10	.88 U	ug/l	10	
Thallium	.88 U	ug/l	10	.88 U	ug/l	10	.88 U	ug/l	10	17.5 J	ug/l	50	2.5 U	ug/l	50	2.8 J	ug/l	50	
Vanadium	17.5 J	ug/l	50	2.5 U	ug/l	50	2.8 J	ug/l	50	12.2 J	ug/l	20	36.8 ug/l	ug/l	20	3.3 J	ug/l	50	
Zinc	246 ug/l	ug/l	20	12.2 J	ug/l	20	12.2 J	ug/l	20	1.7 U	ug/l	10	2 J	ug/l	10	12.9 J	ug/l	20	
Cyanide	1.7 U	ug/l	10	1.7 UJ	ug/l	10	2 J	ug/l	10	2.7 J	ug/l	10	2.7 J	ug/l	10	2.7 J	ug/l	10	

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02/23/95 WHITING FIELD - INDUSTRIAL SITES 17:44:33
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90240001			90236004			90240002			90265003		
Site Locator	WHITING	WHITING	WHITING									
Collect Date:	WHD6-1B	WHD6-1D	WHD6-3	WHD6-3	WHD7-1	WHD7-1	WHD7-1	WHD7-1	WHD7-1	WHD7-1	WHD7-1	WHD7-1
	VALUE	QUAL UNITS	DL									
CLP METALS AND CYANIDE ug/l												
Aluminum	18400	ug/l	200	21 J	ug/l	200	9580	ug/l	200	81.5 J	ug/l	200
Antimony	20.7 U	ug/l	60	20.7 U	ug/l	60	20.7 U	ug/l	60	27.9 J	ug/l	60
Arsenic	1.6 U	ug/l	10	1.6 U	ug/l	10	1.6 U	ug/l	10	25.4	ug/l	10
Barium	118 J	ug/l	200	15.7 J	ug/l	200	59.6 J	ug/l	200	109 J	ug/l	200
Beryllium	.73 J	ug/l	5	.2 U	ug/l	5	.47 J	ug/l	5	.2 U	ug/l	5
Cadmium	7.1	ug/l	5	3.2 U	ug/l	5	13.1	ug/l	5	3.4 J	ug/l	5
Calcium	40700	ug/l	5000	899 J	ug/l	5000	33200	ug/l	5000	29600	ug/l	5000
Chromium	61.2	ug/l	10	3.3 U	ug/l	10	36.2	ug/l	10	4.8 J	ug/l	10
Cobalt	8.6 J	ug/l	50	4.1 U	ug/l	50	5.5 J	ug/l	50	18.1 J	ug/l	50
Copper	34.1	ug/l	25	2.7 J	ug/l	25	16.4 J	ug/l	25	13.5 J	ug/l	25
Iron	21000	ug/l	100	41 J	ug/l	100	15800	ug/l	100	38600	ug/l	100
Lead	.24	ug/l	3	1 U	ug/l	3	6	ug/l	3	730	ug/l	3
Magnesium	2670 J	ug/l	5000	482 J	ug/l	5000	2370 J	ug/l	5000	8080	ug/l	5000
Manganese	264	ug/l	15	20.2	ug/l	15	45.1	ug/l	15	672	ug/l	15
Mercury	.15 U	ug/l	.2									
Nickel	.40	ug/l	40	9 U	ug/l	40	17.4 J	ug/l	40	15 J	ug/l	40
Potassium	16800	ug/l	5000	614 U	ug/l	5000	8110	ug/l	5000	2070 J	ug/l	5000
Selenium	.2 U	ug/l	5	2 U	ug/l	5	3.2 J	ug/l	5	3 J	ug/l	5
Silver	2.7 U	ug/l	10	2.7 U	ug/l	10	2.7 U	ug/l	10	6.6 J	ug/l	10
Sodium	7610	ug/l	5000	2500 J	ug/l	5000	4220 J	ug/l	5000	4350 J	ug/l	5000
Thallium	.88 U	ug/l	10									
Vanadium	75.5	ug/l	50	2.5 U	ug/l	50	46.9 J	ug/l	50	2.5 U	ug/l	50
Zinc	64.5	ug/l	20	5.4 J	ug/l	20	59.8	ug/l	20	14.4 J	ug/l	20
Cyanide	2 J	ug/l	10	1.7 U	ug/l	10	1.7 U	ug/l	10	1.7 U	ug/l	10

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02/23/95 WHITING FIELD - INDUSTRIAL SITES 17:44:33
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90285001	Site	WHITING	Locator	WHF8-1	Collect Date:	09-DEC-93	90278002	WHITING	WHF29-1	07-DEC-93	90280002	WHITING	WHF29-2	08-DEC-93	90280003	WHITING	WHF29-3	08-DEC-93
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	
CLP METALS AND CYANIDE	ug/l																		
Aluminum	41.3 J	ug/l	200	32400	ug/l	200	49400	ug/l	200	5590	ug/l	200	10.4 U	ug/l	60	10.4 U	ug/l	60	
Antimony	10.4 U	ug/l	60	20.7 U	ug/l	60	13.9 J	ug/l	60	5.6 J	ug/l	10	5.6 J	ug/l	10				
Arsenic	4.8 J	ug/l	10	1.6 U	ug/l	10	3 J	ug/l	10										
Barium	9.3 J	ug/l	200	96.2 J	ug/l	200	127 J	ug/l	200	31.2 J	ug/l	200							
Beryllium	.12 U	ug/l	5	.97 J	ug/l	5	.36 J	ug/l	5	.12 U	ug/l	5							
Cadmium	10.5	ug/l	5	5.4	ug/l	5	4.7 J	ug/l	5										
Calcium	1040 J	ug/l	5000	1830 J	ug/l	5000	2640 J	ug/l	5000	1630 J	ug/l	5000							
Chromium	2.4 U	ug/l	10	96	ug/l	10	173	ug/l	10	47.4	ug/l	10							
Cobalt	2.1 U	ug/l	50	6.8 J	ug/l	50	6 J	ug/l	50	2.1 U	ug/l	50							
Copper	4.6 J	ug/l	25	29.4	ug/l	25	42.6	ug/l	25	14.4 J	ug/l	25							
Iron	77.1 J	ug/l	100	104000	ug/l	100	31900	ug/l	100	11200	ug/l	100							
Lead	1.6 U	ug/l	3	12.6	ug/l	3	16.6	ug/l	3	32.4	ug/l	3							
Magnesium	244 J	ug/l	5000	2070 J	ug/l	5000	2400 J	ug/l	5000	1060 J	ug/l	5000							
Manganese	11.6 J	ug/l	15	67.1	ug/l	15	82.7	ug/l	15	19.8	ug/l	15							
Mercury	.13 U	ug/l	.2	.3	ug/l	.2	1.2	ug/l	.2	.14 J	ug/l	.2							
Nickel	4.9 J	ug/l	40	20.7 J	ug/l	40	75.1	ug/l	40	33.3 J	ug/l	40							
Potassium	959 J	ug/l	5000	8770	ug/l	5000	1580 J	ug/l	5000	572 U	ug/l	5000							
Selenium	1.5 U	ug/l	5	2 U	ug/l	5	1.5 U	ug/l	5	1.5 U	ug/l	5							
Silver	2.2 U	ug/l	10	5.8 J	ug/l	10	2.2 U	ug/l	10	2.2 U	ug/l	10							
Sodium	2160 J	ug/l	5000	9100	ug/l	5000	5770	ug/l	5000	3500 J	ug/l	5000							
Thallium	1.4 U	ug/l	10	.88 U	ug/l	10	1.4 U	ug/l	10	1.4 U	ug/l	10							
Vanadium	1.5 U	ug/l	50	130	ug/l	50	104	ug/l	50	31.3 J	ug/l	50							
Zinc	9.7 J	ug/l	20	71.2	ug/l	20	133	ug/l	20	45.2	ug/l	20							
Cyanide	1.2 U	ug/l	10	1.7 U	ug/l	10	1.2 U	ug/l	10	1.2 U	ug/l	10							

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Quotations: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - INDUSTRIAL SITES 17:44:33
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90280004			90280005			90278001			90285003		
Site Locator	WHITING			WHITING			WHITING			WHITING		
Collect Date:	WHF29-3A			WHF29-4			WHF29-5			WHF30-2		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE ug/l												
Aluminum	6060	ug/l	200		3320	ug/l	200		4480	ug/l	200	549
Antimony	10.4 U	ug/l	60		10.4 U	ug/l	60		20.7 U	ug/l	60	10.4 U
Arsenic	3.9 J	ug/l	10		1.3 J	ug/l	10		1.6 U	ug/l	10	5.7 J
Barium	32.7 J	ug/l	200		.46 J	ug/l	200		115 J	ug/l	200	35.9 J
Beryllium	.12 U	ug/l	5		.12 U	ug/l	5		.2 U	ug/l	5	.12 U
Cadmium	4.5 J	ug/l	5		3.2 U	ug/l	5		7.2	ug/l	5	5.1
Calcium	1770 J	ug/l	5000		2280 J	ug/l	5000		2030 J	ug/l	5000	700 J
Chromium	41.2	ug/l	10		99.5	ug/l	10		32.8	ug/l	10	3.7 J
Cobalt	2.1 U	ug/l	50		2.1 U	ug/l	50		5.7 J	ug/l	50	2.1 U
Copper	17.4 J	ug/l	25		17.6 J	ug/l	25		8.5 J	ug/l	25	2.1 J
Iron	12000	ug/l	100		10700	ug/l	100		4130	ug/l	100	1530
Lead	4.4	ug/l	3		4	ug/l	3		4.1	ug/l	3	1.6 U
Magnesium	1090 J	ug/l	5000		1430 J	ug/l	5000		2680 J	ug/l	5000	928 J
Manganese	19.8	ug/l	15		27	ug/l	15		19.6	ug/l	15	5.8 J
Mercury	.13 U	ug/l	.2		.18 J	ug/l	.2		.15 U	ug/l	.2	.13 U
Nickel	27.6 J	ug/l	40		79.8	ug/l	40		22.3 J	ug/l	40	5.1 J
Potassium	572 U	ug/l	5000		572 U	ug/l	5000		1450 J	ug/l	5000	932 J
Selenium	1.5 U	ug/l	5		1.5 U	ug/l	5		2 U	ug/l	5	1.5 U
Silver	2.2 U	ug/l	10		2.2 U	ug/l	10		4.2 J	ug/l	10	2.2 U
Sodium	3530 J	ug/l	5000		4260 J	ug/l	5000		3790 J	ug/l	5000	4280 J
Thallium	1.4 U	ug/l	10		1.4 U	ug/l	10		.88 U	ug/l	10	1.4 U
Vanadium	35.4 J	ug/l	50		25.4 J	ug/l	50		17.7 J	ug/l	50	7.8 J
Zinc	44.8	ug/l	20		80.1	ug/l	20		13.7 J	ug/l	20	12 J
Cyanide	1.2 U	ug/l	10		1.2 U	ug/l	10		1.7 U	ug/l	10	1.4 J

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02/23/95 WHITING FIELD - INDUSTRIAL SITES 17:44:33
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90286002			90289002			90285002			90353003		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF30-3			WHF30-4			WHF30-5			WHF32-1		
Collect Date:	10-DEC-93			13-DEC-93			09-DEC-93			20-JAN-94		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE	ug/l											
Aluminum	6870	ug/l	200		2610	ug/l	200		3890	ug/l	200	53900
Antimony	10.4 U	ug/l	60		10.4 U	ug/l	60		10.4 U	ug/l	60	21.8 U
Arsenic	1 U	ug/l	10		3.8 J	ug/l	10		6.4 J	ug/l	10	4.1 J
Barium	129 J	ug/l	200		21 J	ug/l	200		41 J	ug/l	200	143 J
Beryllium	.12 U	ug/l	5		.12 U	ug/l	5		.18 J	ug/l	5	1.2 J
Cadmium	31.4	ug/l	5		3.9 J	ug/l	5		8.7	ug/l	5	4.6 J
Calcium	34700	ug/l	5000		758 J	ug/l	5000		7860	ug/l	5000	1320 J
Chromium	.34	ug/l	10		16.2	ug/l	10		40.8	ug/l	10	212
Cobalt	2.1 U	ug/l	50		3 J	ug/l	50		2.9 J	ug/l	50	18.6 J
Copper	24.2 J	ug/l	25		7.7 J	ug/l	25		45.4	ug/l	25	195
Iron	9450	ug/l	100		15000	ug/l	100		18500	ug/l	100	110000
Lead	4	ug/l	3		18.4	ug/l	5		2 J	ug/l	3	41.3
Magnesium	1220 J	ug/l	5000		987 J	ug/l	5000		1110 J	ug/l	5000	1650 J
Manganese	40.9	ug/l	15		436	ug/l	15		42.9	ug/l	15	3220
Mercury	.13 U	ug/l	.2		.13 U	ug/l	.2		.13 U	ug/l	.2	.47
Nickel	9.5 J	ug/l	40		6.2 J	ug/l	40		31.4 J	ug/l	40	48.3
Potassium	3880 J	ug/l	5000		1540 J	ug/l	5000		2640 J	ug/l	5000	2160 J
Selenium	1.5 U	ug/l	5		1.6 J	ug/l	5		1.5 U	ug/l	5	2 U
Silver	2.2 U	ug/l	10		2.2 U	ug/l	10		2.2 J	ug/l	10	2 U
Sodium	6830	ug/l	5000		4330 J	ug/l	5000		3770 J	ug/l	5000	5410
Thallium	1.4 U	ug/l	10		1.4 U	ug/l	10		1.4 U	ug/l	10	.88 UJ
Vanadium	38.5 J	ug/l	50		24.9 J	ug/l	50		45.2 J	ug/l	50	515
Zinc	32	ug/l	20		20 J	ug/l	20		276	ug/l	20	1270
Cyanide	1.2 U	ug/l	10		2.5 U	ug/l	10		1.2 U	ug/l	10	1.7 U

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02/23/95 WHITING FIELD - INDUSTRIAL SITES 17:44:33
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90353004	90343003	90343005	90353006								
Site	WHITING	WHITING	WHITING	WHITING								
Locator	WHF32-1A	WHF32-2	WHF32-3	WHF32-4								
Collect Date:	20-JAN-94	19-JAN-94	19-JAN-94	20-JAN-94								
	VALUE	QUAL UNITS	DL	VALUE								
CLP METALS AND CYANIDE ug/l												
Aluminum	49800	ug/l	200	1890	ug/l	200	10400	ug/l	200	40900	ug/l	200
Antimony	21.8 U	ug/l	60	21.8 U	ug/l	60	21.8 U	ug/l	60	21.8 U	ug/l	60
Arsenic	.5 J	ug/l	10	1.6 U	ug/l	10	3.4 J	ug/l	10	4.3 J	ug/l	10
Barium	138 J	ug/l	200	35.6 J	ug/l	200	53.8 J	ug/l	200	119 J	ug/l	200
Beryllium	1 J	ug/l	5	.1 U	ug/l	5	.1 U	ug/l	5	.4 J	ug/l	5
Cadmium	3.6 J	ug/l	5	3.6 U	ug/l	5	5.7	ug/l	5	12.5	ug/l	5
Calcium	1270 J	ug/l	5000	600 J	ug/l	5000	554 J	ug/l	5000	8160	ug/l	5000
Chromium	201	ug/l	10	8 J	ug/l	10	124	ug/l	10	61.2	ug/l	10
Cobalt	17.9 J	ug/l	50	2.7 U	ug/l	50	2.7 U	ug/l	50	2.7 J	ug/l	50
Copper	181	ug/l	25	1.9 U	ug/l	25	14.5 J	ug/l	25	.46	ug/l	25
Iron	108000	ug/l	100	2660	ug/l	100	11000	ug/l	100	86900	ug/l	100
Lead	51.7	ug/l	3	1.5 J	ug/l	3	22.3	ug/l	3	265	ug/l	3
Magnesium	1630 J	ug/l	5000	767 J	ug/l	5000	878 J	ug/l	5000	2140 J	ug/l	5000
Manganese	3020	ug/l	15	9.2 J	ug/l	15	232	ug/l	15	1140	ug/l	15
Mercury	.48	ug/l	.2	.15 U	ug/l	.2	.15 U	ug/l	.2	.22	ug/l	.2
Nickel	49.4	ug/l	40	11.6 U	ug/l	40	70.9	ug/l	40	16.8 J	ug/l	40
Potassium	1860 J	ug/l	5000	373 U	ug/l	5000	670 J	ug/l	5000	2400 J	ug/l	5000
Selenium	2 U	ug/l	5	2 U	ug/l	5	2 U	ug/l	5	2 U	ug/l	5
Silver	2 U	ug/l	10	2 U	ug/l	10	2 U	ug/l	10	2.7 J	ug/l	10
Sodium	5050	ug/l	5000	1980 J	ug/l	5000	4390 J	ug/l	5000	5310	ug/l	5000
Thallium	.88 UJ	ug/l	10	.88 UJ	ug/l	10	.88 UJ	ug/l	10	.88 UJ	ug/l	10
Vanadium	510	ug/l	50	11.3 J	ug/l	50	26 J	ug/l	50	80.3	ug/l	50
Zinc	1200	ug/l	20	5.5 J	ug/l	20	14.7 J	ug/l	20	230	ug/l	20
Cyanide	1.7 U	ug/l	10	1.7 U	ug/l	10	1.7 U	ug/l	10	1.7 U	ug/l	10

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02/23/95 WHITING FIELD - INDUSTRIAL SITES 17:44:33
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90353002			90320003			90320004			90291002		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF32-5			WHF33-1			WHF33-1A			WHF33-2		
Collect Date:	20-JAN-94			10-JAN-94			10-JAN-94			14-DEC-93		
	VALUE	QUAL UNITS	DL									
CLP METALS AND CYANIDE	ug/l											
Aluminum	44700	ug/l	200	10700	ug/l	200	8490	ug/l	200	4360	ug/l	200
Antimony	21.9 J	ug/l	60	20.7 U	ug/l	60	20.7 U	ug/l	60	10.4 U	ug/l	60
Arsenic	1.6 U	ug/l	10	1.6 U	ug/l	10	1.6 U	ug/l	10	1 U	ug/l	10
Barium	123 J	ug/l	200	87.6 J	ug/l	200	89.5 J	ug/l	200	75.7 J	ug/l	200
Beryllium	.77 J	ug/l	5	.55 J	ug/l	5	.55 J	ug/l	5	.12 U	ug/l	5
Cadmium	7	ug/l	5	6.4	ug/l	5	6.7	ug/l	5	4.5 J	ug/l	5
Calcium	3380 J	ug/l	5000	2560 J	ug/l	5000	2870 J	ug/l	5000	3890 J	ug/l	5000
Chromium	133	ug/l	10	22.7	ug/l	10	20.5	ug/l	10	11.8	ug/l	10
Cobalt	6.8 J	ug/l	50	4.1 U	ug/l	50	4.8 J	ug/l	50	2.1 J	ug/l	50
Copper	48.5	ug/l	25	9.9 J	ug/l	25	11.2 J	ug/l	25	7.7 J	ug/l	25
Iron	64900	ug/l	100	17500	ug/l	100	18100	ug/l	100	3570	ug/l	100
Lead	19.8	ug/l	3	4.8	ug/l	3	5.6	ug/l	3	13.4	ug/l	3
Magnesium	1430 J	ug/l	5000	1970 J	ug/l	5000	2160 J	ug/l	5000	1850 J	ug/l	5000
Manganese	729	ug/l	15	27.1	ug/l	15	29.5	ug/l	15	41.3	ug/l	15
Mercury	.23	ug/l	.2	.15 U	ug/l	.2	.15 U	ug/l	.2	.13 U	ug/l	.2
Nickel	25.4 J	ug/l	40	16.1 J	ug/l	40	12.7 J	ug/l	40	3.9 U	ug/l	40
Potassium	1780 J	ug/l	5000	1250 J	ug/l	5000	1050 J	ug/l	5000	1720 J	ug/l	5000
Selenium	2 U	ug/l	5	2 U	ug/l	5	2 U	ug/l	5	1.5 U	ug/l	5
Silver	2 U	ug/l	10	2.7 U	ug/l	10	2.7 U	ug/l	10	2.2 U	ug/l	10
Sodium	2760 J	ug/l	5000	2960 J	ug/l	5000	3390 J	ug/l	5000	4460 J	ug/l	5000
Thallium	.88 UJ	ug/l	10	.88 U	ug/l	10	.88 U	ug/l	10	1.4 U	ug/l	10
Vanadium	269	ug/l	50	64.9	ug/l	50	72.1	ug/l	50	11.6 J	ug/l	50
Zinc	81.9	ug/l	20	31.2	ug/l	20	38.1	ug/l	20	35.8	ug/l	20
Cyanide	1.7 U	ug/l	10	1.8 J	ug/l	10	1.9 J	ug/l	10	1.2 U	ug/l	10

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02/23/95 WHITING FIELD - INDUSTRIAL SITES 17:44:33
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90320002	90291003	90291001					
Site	WHITING	WHITING	WHITING					
Locator	WHF33-3	WHF33-4	WHF33-5					
Collect Date:	10-JAN-94	14-DEC-93	14-DEC-93					
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP METALS AND CYANIDE	ug/l								
Aluminum	4770	ug/l	200	5550	ug/l	200	45700	ug/l	200
Antimony	20.7	U	60	10.4	U	60	10.4	U	60
Arsenic	1.6	U	10	1	U	10	1	U	10
Barium	38.7	J	200	82.4	J	200	109	J	200
Beryllium	.2	U	5	.12	U	5	.24	J	5
Cadmium	20.4	ug/l	5	6	ug/l	5	19.4	ug/l	5
Calcium	3300	J	5000	2380	J	5000	2800	J	5000
Chromium	18.7	ug/l	10	14.2	ug/l	10	61.9	ug/l	10
Cobalt	4.1	U	50	2.1	U	50	4.5	J	50
Copper	5.8	J	25	9.4	J	25	27.2	J	25
Iron	8050	ug/l	100	3920	ug/l	100	28300	ug/l	100
Lead	2.6	J	3	3.4	ug/l	3	8.6	ug/l	3
Magnesium	1390	J	5000	2200	J	5000	1880	J	5000
Manganese	25.7	ug/l	15	19.6	ug/l	15	120	ug/l	15
Mercury	.15	U	ug/l	.2	.13	U	.13	U	.2
Nickel	9	U	40	3.9	U	40	12.6	J	40
Potassium	833	J	5000	1260	J	5000	2070	J	5000
Selenium	2	U	5	1.5	U	5	1.5	U	5
Silver	2.7	U	10	2.2	U	10	2.2	U	10
Sodium	4150	J	5000	3140	J	5000	2970	J	5000
Thallium	6	J	10	1.4	U	10	1.4	U	10
Vanadium	27	J	50	13.7	J	50	61.3	ug/l	50
Zinc	18.5	J	20	33.1	ug/l	20	148	ug/l	20
Cyanide	2	J	10	1.2	U	10	1.2	U	10

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02/23/95 WHITING FIELD - INDUSTRIAL SITES 18:02:29
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90331001	90331002	90330002	90330002DL
Site	WHITING	WHITING	WHITING	WHITING
Locator	WHF3-1	WHF3-1A	WHF3-1B	WHF3-1BDL
Collect Date:	12-JAN-94	12-JAN-94	12-JAN-94	12-JAN-94
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS
TENTATIVELY IDENTIFIED CMPNDs.	ug/l			
(7.050) Butane, 2,3-Dimethyl-	18 J	ug/l		
(10.767) Pentane, 2,3-Dimethyl	9 J	ug/l		
(11.283) Pentane, 2,2,4-Trimethyl	9 J	ug/l		
(13.700) Octane, 4-Methyl-	7 J	ug/l		
(2.517) Butane	6 J	ug/l		
(4.050) Butane, 2-Methyl-	50 J	ug/l		
(9.250) Pentane, 2,4-Dimethyl-	6 J	ug/l		
(5.848) 2-Pentanone, 4-Hydroxy	4 UJ	ug/l		
(8.523) Ethanol, 2-(2-Ethoxyethyl)	8 J	ug/l		
(9.185) 2-Pyrrolidinone, 1-Methyl	64 J	ug/l		
(6.660) Cyclohexanol	3 J	ug/l		
(9.180) 2-Pyrrolidinone, 1-Methyl	48 J	ug/l		
(10.767) Pentane, 2,3-Dimethyl	9 J	ug/l		
(13.700) Pentane, 2,3,3-Trimethyl	7 J	ug/l		
(7.033) Butane, 2,3-Dimethyl-	16 J	ug/l		
(3.967) Butane, 2-Methyl-	48 J	ug/l		
(9.233) Pentane, 2,4-Dimethyl-	6 J	ug/l		
(11.267) Pentane, 2,2,4-Trimethyl	8 J	ug/l		
(2.517) Butane	5 J	ug/l		
(5.030) 3-Penten-2-One, 4-Methyl	2 UJ	ug/l		
(8.520) Ethanol, 2-(2-Ethoxyethyl)	5 J	ug/l		
(10.767) Pentane, 2,3-Dimethyl	160 J	ug/l		
(3.967) Butane, 2-Methyl-	590 J	ug/l		
(9.667) Cyclopentane, Methyl-	130 J	ug/l		
(2.467) Butane	160 J	ug/l		
(7.017) Butane, 2,3-Dimethyl-	360 J	ug/l		
(10.960) Benzoic Acid	4 J	ug/l		
(11.830) Unsaturated Alkane	11 J	ug/l		
(5.020) 3-Pentanone, 2,2-Dimethyl	17 J	ug/l		
(7.310) Disulfide, Diethyl	20 J	ug/l		
(7.940) Benzene, Ethylmethyl-	11 J	ug/l		
(8.050) Trimethylbenzene (some)	6 J	ug/l		
(8.450) Benzene, Trimethyl- Is	15 J	ug/l		
(8.930) Benzene, Trimethyl- I	5 J	ug/l		
(4.060) Pentane, 2,3,3-Trimethyl	4 J	ug/l		
(5.790) Methyl Ethyl Disulphid	3 J	ug/l		
(9.230) 2-Pyrrolidinone, 1-Methyl	42 J	ug/l		
(7.033) Butane, 2,3-Dimethyl-	310 J	ug/l		
(3.917) Butane, 2-Methyl-	1300 J	ug/l		

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITTING FIELD - INDUSTRIAL SITES 18:02:29
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90331001DL	90333001	90333002	90299001				
Site	WHITTING	WHITTING	WHITTING	WHITTING				
Locator	WHF3-1DL	WHF3-2	WHF3-2B	WHF3-2D				
Collect Date:	12-JAN-94	13-JAN-94	13-JAN-94	16-DEC-93				
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

TENTATIVELY IDENTIFIED CMPNDS. ug/l

(9.106) 2-Pyrrolidinone, 1-Met	69 J	ug/l						
(5.830) 2-Pentanone, 4-Hydroxy			2 J	ug/l				
(8.491) Ethanol, 2-(2-Ethoxyeth			5 J	ug/l				
(9.124) 2-Pyrrolidinone, 1-Met			16 J	ug/l				
(11.267) Butane, 2,2,3,3-Tetra					39 J	ug/l		
(13.483) Pentane, 2,3,4-Trimethyl					16 J	ug/l		
(2.083) Isobutane					10 J	ug/l		
(3.967) Butane, 2-Methyl-					170 J	ug/l		
(9.250) Pentane, 2,4-Dimethyl-					25 J	ug/l		
(9.683) Cyclopentane, Methyl-					9 J	ug/l		
(10.767) Pentane, 2,3-Dimethyl					30 J	ug/l		
(13.700) Pentane, 2,3,3-Trimethyl					30 J	ug/l		
(2.500) Butane					27 J	ug/l		
(7.017) Butane, 2,3-Dimethyl-					59 J	ug/l		
(5.520) 2,4-Pentanedione, 3-Methyl					2 J	ug/l		
(5.820) 2-Pentanone, 4-Hydroxy					3 J	ug/l		
(8.500) 2-Propanol, 1-(2-Methoxy)					3 J	ug/l		
(9.130) 2-Pyrrolidinone, 1-Methyl					36 J	ug/l		
(4.020) Pentane, Trimethyl- I					2 J	ug/l		
(9.25) 2-Pyrrolidinone, 1-Methyl							50 J	ug/l
(9.25) 2-Pyrrolidinone, 1-Methyl							50 J	ug/l

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - INDUSTRIAL SITES 18:02:29
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90334002	90334002RE	90337003	90325002
Site	WHITING	WHITING	WHITING	WHITING
Locator	WHF3-3	WHF3-3RE	WHF3-3B	WHF3-3D
Collect Date:	14-JAN-94	14-JAN-94	18-JAN-94	11-JAN-94
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS
TENTATIVELY IDENTIFIED CMPNDS. ug/l				
(5.831) 2-Pentanone, 4-Hydroxy	3 UJ	ug/l		
(8.636) 2-Propanol, 1-(2-Metho	2 J	ug/l		
(8.492) Ethanol, 2-(2-Ethoxyet	6 UJ	ug/l		
(5.812) 2-Pentanone, 4-Hydroxy		15 UJ	ug/l	
(11.267) Butane, 2,2,3,3-Tetra			32 J	ug/l
(13.483) Pentane, 3-Ethyl-			14 J	ug/l
(15.883) 3-Pentanone, 2,2-Dime			12 J	ug/l
(4.017) Butane, 2-Methyl-			120 J	ug/l
(9.233) Pentane, 2,4-Dimethyl-			18 J	ug/l
(9.667) Cyclopentane, Methyl-			11 J	ug/l
(13.700) Octane, 4-Methyl-			25 J	ug/l
(2.533) Butane			18 J	ug/l
(7.033) Butane, 2,3-Dimethyl-			38 J	ug/l
(11.801) Unsaturated Methylate			18 J	ug/l
(6.853) 2-Hexanone, 3,4-Dimeth			3 J	ug/l
(7.464) Methylated Hydrocarbon			4 J	ug/l
(10.923) Methylated Alkene			14 J	ug/l
(4.954) 3-Pentanone, 2,2-Dimet			10 J	ug/l
(5.810) 2-Pentanone, 4-Hydroxy				2 J ug/l
(9.146) 2-Pyrrolidinone, 1-Met				99 J ug/l

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE D = DOUBLE INTERMEDIATE SAMPLE E = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - INDUSTRIAL SITES 18:02:29
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90353005	90353005DL	90343001	90325003				
Site	WHITING	WHITING	WHITING	WHITING				
Locator	WHF3-4	WHF3-4DL	WHF3-7B	WHF3-7D				
Collect Date:	20-JAN-94	20-JAN-94	19-JAN-94	11-JAN-94				
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

TENTATIVELY IDENTIFIED CMPNDs. ug/l

(1.136) Butane, 2-Methyl-	1600 J	ug/l
(16.343) Benzene, 1-Ethyl-3-Me	70 J	ug/l
(8.357) Unknown Hydrocarbon	460 J	ug/l
(0.668) Isobutane	50 J	ug/l
(1.394) Pentane	150 J	ug/l
(17.316) Benzene, 1,2,3-Trimet	60 J	ug/l
(12.160) Benzoic Acid, Methyl-	9 J	ug/l
(7.290) Disulfide, Diethyl	10 J	ug/l
(8.220) Benzene, Ethyl Methyl-	6 J	ug/l
(8.900) Trimethylbenzene Isom	6 J	ug/l
(8.430) Benzene, Trimethyl- I	23 J	ug/l
(10.910) Benzoic Acid	6 J	ug/l
(4.990) 3-Pentanone, 2,2-Dimet	27 J	ug/l
(7.920) Benzene, Ethyl Methyl-	19 J	ug/l
(8.030) Benzene, Trimethyl- I	7 J	ug/l

(1.135) Butane, 2-Methyl-

910 J ug/l

(2.385) Butane, 2,3-Dimethyl-	340 J	ug/l
(4.121) Pentane, 2,4-Dimethyl-	160 J	ug/l
(4.427) Cyclopentane, Methyl-	200 J	ug/l
(5.477) Pentane, 2,3-Dimethyl-	310 J	ug/l
(8.351) Pentane, 2,3,3-Trimeth	220 J	ug/l
(12.130) Benzoic Acid, Methyl-	6 J	ug/l
(4.990) 3-Pentanone, 2,2-Dimet	17 J	ug/l
(5.850) 2-Pantanone, 4-Hydroxy	13 UJ	ug/l
(7.290) Disulfide, Diethyl	31 J	ug/l
(7.940) Benzene, Ethyl Methyl-	7 J	ug/l
(8.220) Benzene, Ethyl Methyl-	7 J	ug/l
(9.150) 2-Pyrrolidinone, 1-Met	13 J	ug/l
(8.020) Benzene, Trimethyl- I	10 J	ug/l
(8.430) Benzene, Trimethyl- I	26 J	ug/l

(19.617) Cyclotetrasiloxane, 0	7 J	ug/l
(5.804) 2-Pantanone, 4-Hydroxy	2 J	ug/l

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

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02/23/95 WHITING FIELD - INDUSTRIAL SITES 18:02:29
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90337004	90343002	90256001	90265002				
Site	WHITING	WHITING	WHITING	WHITING				
Locator	WHF3-7C	WHF4-1	WHF5-0W1	WHF5-3				
Collect Date:	18-JAN-94	19-JAN-94	01-DEC-93	02-DEC-93				
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

TENTATIVELY IDENTIFIED CMPNDS. ug/l

(10.783) Pentane, 2,3-Dimethyl	37 J	ug/l
(11.300) Pentane, 2,2,4-Trimethyl	38 J	ug/l
(13.500) Pentane, 2,3,4-Trimethyl	13 J	ug/l
(2.550) Butane	12 J	ug/l
(4.217) Butane, 2-Methyl-	150 J	ug/l
(9.283) Pentane, 2,4-Dimethyl-	30 J	ug/l
(13.717) Pentane, 2,3,3-Trimethyl	26 J	ug/l
(7.167) Butane, 2,3-Dimethyl-	66 J	ug/l
(9.717) Cyclopentane, Methyl-	11 J	ug/l
(5.809) 2-Pantanone, 4-Hydroxy	5 UJ	ug/l

(19.069) Bromacil	4 J	ug/l
(5.820) 2-Pantanone, 4-Hydroxy	14 UJ	ug/l
(6.628) Cyclohexanol	3 J	ug/l

(5.20) 2-Cyclohexen-1-Ol	2 J	ug/l
(6.25) 2-Cyclohexen-1-One	3 J	ug/l

(6.02) Benzene, Methylethyl- I		
(7.63) Benzene, Trimethyl- Iso		

4 J ug/l
 3 J ug/l

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE D = DOUBLE INTERMEDIATE SAMPLE E = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - INDUSTRIAL SITES 18:02:29
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90253001	90359001	90257001	90257002
Site	WHITING	WHITING	WHITING	WHITING
Locator	WHF5-8B	WHF5-8D	WHF5-9B	WHF5-9BA
Collect Date:	30-NOV-93	21-JAN-94	01-DEC-93	01-DEC-93
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS

TENTATIVELY IDENTIFIED CMPNDS. ug/l

(22.14) Hexadecanoic Acid 3 J ug/l
 (8.87) 2-Pyrrolidinone, 1-Meth 41 J ug/l

(5.817) 2-Pentanone, 4-Hydroxy 7 UJ ug/l
 (9.118) 2-Pyrrolidinone, 1-Met 17 J ug/l

(22.14) Hexadecanoic Acid 7 J ug/l
 (8.90) 2-Pyrrolidinone, 1-Meth 63 J ug/l

(5.17) 2-Cyclohexen-1-Ol 2 J ug/l
 (8.90) 2-Pyrrolidinone, 1-Meth 55 J ug/l
 (22.10) Hexadecanoic Acid 7 J ug/l
 (6.20) 2-Cyclohexen-1-One 3 J ug/l

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - INDUSTRIAL SITES 18:02:29
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90253002	90242001	90240001	90240001DL
Site	WHITING	WHITING	WHITING	WHITING
Locator	WHF5-9D	WHF5-10B	WHF6-1B	WHF6-1BDL
Collect Date:	30-NOV-93	19-NOV-93	18-NOV-93	18-NOV-93
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS

TENTATIVELY IDENTIFIED CMPNDS. ug/l

(5.62) Ethanol, 2-Butoxy-
 (8.85) 2-Pyrrolidinone, 1-Meth-

4 J ug/l
 38 J ug/l

(23.59) Hexadecanoic Acid

2 J ug/l

(10.02) Pyrrolidinone, Methyl-

44 J ug/l

(23.59) Hexadecanoic Acid

11 J ug/l

(25.84) Octadecanoic Acid

18 J ug/l

(9.99) Pyrrolidinone, Methyl-

52 J ug/l

(15.926) Cyclotetrasiloxane, O

130 J ug/l

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE D = DOUBLE INTERMEDIATE SAMPLE E = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - INDUSTRIAL SITES 18:02:29
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90236004	90265003	90285001	90278002				
Site	WHITING	WHITING	WHITING	WHITING				
Locator	WHF6-1D	WHF7-1	WHF8-1	WHF29-1				
Collect Date:	17-NOV-93	02-DEC-93	09-DEC-93	07-DEC-93				
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

TENTATIVELY IDENTIFIED CMPNDs. ug/l

(15.916) Cyclotetrasiloxane, 0
 (6.85) Cyclohexanol (Acn)

17 J ug/l
 4 J ug/l

(7.63) Benzene, Trimethyl- Iso
 (9.39) Ethanone, 1-Phenyl-
 (5.93) Disulfide, Diethyl
 (21.22) Benzene, Trimethyl- Is
 (19.74) Disulfide, Diethyl

27 J ug/l
 23 J ug/l
 26 J ug/l
 51 J ug/l
 64 J ug/l

(8.54) 2-Pyrrolidinone, 1-Meth
 (8.59) 2-Pyrrolidinone, 1-Meth

6 J ug/l
 28 J ug/l

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - INDUSTRIAL SITES 18:02:29
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90280002	90280003	90280003R2	90280004				
Site	WHITING	WHITING	WHITING	WHITING				
Locator	WHF29-2	WHF29-3	WHF29-3R2	WHF29-3A				
Collect Date:	08-DEC-93	08-DEC-93	08-DEC-93	08-DEC-93				
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

TENTATIVELY IDENTIFIED CMPNDS. ug/l

(16.04) Diazene, Bis(1,1-Dimet	11 J	ug/l						
(13.37) Cyclopentane, 1,2,3-Tr			27 J	ug/l				
(11.49) Pentane, Tetramethyl-			39 J	ug/l				
(16.05) Diazene, Bis(1,1-Dimet			340 J	ug/l				
(11.95) Butane, Tetramethyl- I			52 J	ug/l				
(12.90) 1-Hexene, 5,5-Dimethyl					110 J	ug/l		
(4.75) Propanoic Acid, 2,2-Dim					160 J	ug/l		
(10.09) Pentane, Dimethyl- Iso							18 J	ug/l
(11.49) Pentane, Dimethyl- Iso							39 J	ug/l
(14.15) Pentane, Trimethyl- Is							53 J	ug/l
(11.94) Butane, Tetramethyl- I							51 J	ug/l
(16.04) Diazene, Bis(1,1-Dimet							350 J	ug/l

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - INDUSTRIAL SITES 18:02:29
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90280005	90278001	90285003	90286002				
Site	WHITING	WHITING	WHITING	WHITING				
Locator	WHF29-4	WHF29-5	WHF30-2	WHF30-3				
Collect Date:	08-DEC-93	07-DEC-93	09-DEC-93	10-DEC-93				
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

TENTATIVELY IDENTIFIED CMPNDs. ug/l

(8.55) 2-Pyrrolidinone, 1-Meth
 (16.04) Diazene, Bis(1,1-Dimet

21 J ug/l
 8 J ug/l

3 J ug/l

23 J ug/l

(21.94) Hexadecanoic Acid

(7.15) Ethane, 1,1,2-Trichloro

(10.09) Pentane, Dimethyl- Iso

(13.92) Hexane, Dimethyl- Isom

(15.90) 3-Pentanone, 2,4-Dimet

(16.04) Diazene, Bis(1,1-Dimet

(14.15) Hexane, Trimethyl- Iso

10 J ug/l	10
21 J ug/l	10
18 J ug/l	10
160 J ug/l	10
44 J ug/l	10

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifier: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - INDUSTRIAL SITES 18:02:29
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90286002DL	90289002	90285002	90353003				
Site	WHITING	WHITING	WHITING	WHITING				
Locator	WHF30-3DL	WHF30-4	WHF30-5	WHF32-1				
Collect Date:	10-DEC-93	13-DEC-93	09-DEC-93	20-JAN-94				
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

TENTATIVELY IDENTIFIED CMPNDs. ug/l

(16.09) Diazene, Bis(1,1-Dimet

110 J ug/l

50

51 J ug/l
 120 J ug/l
 18 J ug/l
 91 J ug/l
 71 J ug/l
 34 J ug/l
 180 J ug/l
 190 J ug/l
 460 J ug/l

5 J ug/l

940 J ug/l
 160 J ug/l
 540 J ug/l
 59 J ug/l
 320 J ug/l
 12 J ug/l
 120 J ug/l
 12 J ug/l
 32 UJ ug/l
 34 J ug/l
 11 J ug/l
 12 J ug/l
 13 J ug/l
 18 J ug/l
 42 J ug/l
 34 J ug/l
 15 J ug/l
 64 J ug/l

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - INDUSTRIAL SITES 18:02:29
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90353004	90353004DL	90343003	90343005				
Site	WHITING	WHITING	WHITING	WHITING				
Locator	WHF32-1A	WHF32-1ADL	WHF32-2	WHF32-3				
Collect Date:	20-JAN-94	20-JAN-94	19-JAN-94	19-JAN-94				
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

TENTATIVELY IDENTIFIED CMPNDs. ug/l

(0.668) Isobutane	36 J	ug/l
(1.375) Pentane	250 J	ug/l
(15.156) Benzene, (1-Methyleth	19 J	ug/l
(16.333) Benzene, 1-Ethyl-2-Me	36 J	ug/l
(17.309) Benzene, 1,2,3-Trimet	59 J	ug/l
(3.316) Hexane	69 J	ug/l
(4.137) Pentane, 2,4-Dimethyl-	280 J	ug/l
(8.369) Hexane, 2,3,4-Trimethyl	360 J	ug/l
(5.535) Cyclohexane	1000 J	ug/l
(5.840) 2-Pentanone, 4-Hydroxy	24 UJ	ug/l
(7.910) Benzene, Ethyl Methyl-	30 J	ug/l
(8.210) Benzene, Ethyl Methyl-	10 J	ug/l
(10.690) Bicyclo[2.2.1]Heptan-	9 J	ug/l
(12.170) Benzoic Acid, Methyl-	28 J	ug/l
(12.360) Benzoic Acid, Methyl-	120 J	ug/l
(13.080) Benzoic Acid, Dimethyl	8 J	ug/l
(4.840) Cyclopentanol, 1-Methy	12 J	ug/l
(4.980) 3-Pentanone, 2,2-Dimet	21 J	ug/l
(7.310) Benzene, (1-Methylethy	13 J	ug/l
(7.790) Benzene, Propyl-	7 J	ug/l
(8.020) Benzene, Trimethyl- I	23 J	ug/l
(8.430) Benzene, Trimethyl- I	47 J	ug/l
(17.315) Benzene, 1,2,3-Trimet	51 J	ug/l
(4.131) Pentane, 2,4-Dimethyl-	200 J	ug/l
(4.418) Cyclopentane, Methyl-	270 J	ug/l
(6.099) Unknown Hydrocarbon	980 J	ug/l
(1.365) Pentane	130 J	ug/l
(2.376) Butane, 2,3-Dimethyl-	400 J	ug/l
(5.535) Unknown Hydrocarbon	780 J	ug/l
(8.363) Pentane, 2,3,3-Trimeth	270 J	ug/l
(1.136) Butane, 2-Methyl-	810 J	ug/l
(4.131) Pentane, 2,4-Dimethyl-	200 J	ug/l
(5.487) Pentane, 2,3-Dimethyl-	420 J	ug/l
(2.376) Butane, 2,3-Dimethyl-	340 J	ug/l
(10.690) Bicyclo[2.2.1]Heptan-	3 J	ug/l
(11.990) Benzoic Acid, 3-Meth	3 J	ug/l
(14.470) Benzoic Acid, 2,4,5-T	5 J	ug/l
(4.980) 3-Penten-2-One, 4-Meth	4 J	ug/l
(5.830) 2-Pentanone, 4-Hydroxy	54 UJ	ug/l

02/23/95 WHITING FIELD - INDUSTRIAL SITES 18:02:29
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90353004	90353004DL	90343003	90343005
Site	WHITING	WHITING	WHITING	WHITING
Locator	WHF32-1A	WHF32-1ADL	WHF32-2	WHF32-3
Collect Date:	20-JAN-94	20-JAN-94	19-JAN-94	19-JAN-94
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS
(7.240) Hexylene Glycol			19 J	ug/l
(7.470) 2-Cyclohexen-1-One			6 J	ug/l
(8.880) Trimethylbenzene Isom			10 J	ug/l
(11.430) 1-Butoxyethoxy-2-Prop			4 J	ug/l
(8.420) Benzene, Trimethyl- I			5 J	ug/l
(1.384) Pentane				
(15.173) Benzene, (1-Methyleth			84 J	ug/l
(16.482) Benzene, 1,3,5-Timet			34 J	ug/l
(2.386) Butane, 2,3-Dimethyl-			34 J	ug/l
(4.429) Cyclopentane, Methyl-			330 J	ug/l
(5.518) Pentane, 2,3-Dimethyl-			130 J	ug/l
(1.136) Butane, 2-Methyl-			410 J	ug/l
(11.030) 3-Pentanone, 2,2-Dime			650 J	ug/l
(17.312) Benzene, 1,2,4-Timet			33 J	ug/l
(4.152) Pentane, 2,4-Dimethyl-			68 J	ug/l
(10.270) Benzene, Tetramethyl-			110 J	ug/l
(10.710) Bicyclo[2.2.1]Heptan-			38 J	ug/l
(12.280) Benzoic Acid, Methyl-			170 J	ug/l
(6.820) Cyclic Ketone			59 J	ug/l
(7.310) Benzene, (1-Methylethy			11 J	ug/l
(8.020) Trimethylbenzene Isom			28 J	ug/l
(8.220) Benzene, Trimethyl- I			26 J	ug/l
(8.430) Trimethylbenzene Isom			12 J	ug/l
(7.910) Benzene, Ethyl Methyl-			43 J	ug/l
(8.240) Cyclohexane, 1-Methyl-			14 J	ug/l
(9.350) Benzene, Ethyl Dimethy			19 J	ug/l

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - INDUSTRIAL SITES 18:02:29
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90353006	90353002	90320002					
Site	WHITING	WHITING	WHITING					
Locator	WHF32-4	WHF32-5	WHF33-3					
Collect Date:	20-JAN-94	20-JAN-94	10-JAN-94					
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

TENTATIVELY IDENTIFIED CMPNDS. ug/l

(1.155) Butane, 2-Methyl-	2700 J	ug/l
(15.065) Heptane, 4-Ethyl-2,2,	2200 J	ug/l
(2.376) Butane, 2,3-Dimethyl-	3700 J	ug/l
(5.449) Pentane, 2,3-Dimethyl-	14000 J	ug/l
(9.196) Hexane, 2,2,5-Trimethy	9600 J	ug/l
(12.378) Heptane, 2,2,4-Trimet	1600 J	ug/l
(4.122) Pentane, 2,4-Dimethyl-	7000 J	ug/l
(8.240) Pentane, 2,3,4-Trimeth	13000 J	ug/l
(8.440) Trimethylbenzene Isom	57 J	ug/l
(8.970) Hydrocarbon	16 J	ug/l
(4.050) Pentane, 2,3,3-Trimeth	79 J	ug/l
(5.000) Alkylated Alkane	26 J	ug/l
(5.670) Heptane, 2,5-Dimethyl-	25 J	ug/l
(7.090) Alkylated Alkane	32 J	ug/l
(7.820) Alkylated Alkane	77 J	ug/l
(8.030) Trimethylbenzene Isom	45 J	ug/l
(3.930) Pentane, 2,3,4-Trimeth	62 J	ug/l
(4.150) Alkylated Alkane	14 J	ug/l
(4.660) Hexane, Trimethyl- Is	88 J	ug/l
(5.300) Hexane, 2,3,5-Trimethy	28 J	ug/l
(6.070) Alkylated Alkane	14 J	ug/l
(6.580) Alkylated Alkane	42 J	ug/l
(7.330) Benzene, (1-Methylethy	27 J	ug/l
(7.920) Benzene, Ethyl Methyl-	54 J	ug/l
(8.220) Benzene, Ethyl Methyl-	17 J	ug/l
(8.330) Hydrocarbon	13 J	ug/l
(8.890) Benzene, Trimethyl- I	18 J	ug/l
(9.350) Hydrocarbon	13 J	ug/l
	9 J	ug/l
	11 J	ug/l
	12 J	ug/l
	11 J	ug/l
	12 J	ug/l
	140 J	ug/l
	24 J	ug/l
	17 J	ug/l
	20 J	ug/l
	71 J	ug/l
	160 J	ug/l
	29 J	ug/l

02/23/95 WHITING FIELD - INDUSTRIAL SITES 18:02:29
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90353006		90353002		90320002	
Site	WHITING		WHITING		WHITING	
Locator	WHF32-4		WHF32-5		WHF33-3	
Collect Date:	20-JAN-94		20-JAN-94		10-JAN-94	
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
Pentane, 2,4-Dimethyl-				38 J	ug/l	
Pentane, 2,3-Dimethyl-				90 J	ug/l	
Butane, 2,2,3,3-Tetramethyl-				93 J	ug/l	
(6.615) Cyclohexanol					3 J	ug/l

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - PERIMETER SITES 15:17:40
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90175001	90174005	90174004	90174004RE								
Site Locator	WHITING WHFBKG-1	WHITING WHFBKG2	WHITING WHFBKG3	WHITING WHFBKG3RE								
Collect Date:	15-OCT-93	14-OCT-93	14-OCT-93	14-OCT-93								
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
CLP SEMIVOLATILES 90-SOM	ug/l											
Phenol	10 U	ug/l	10	10 U	ug/l	10	10 R	ug/l	10	10 UJ	ug/l	10
bis(2-Chloroethyl) ether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
2-Chlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 R	ug/l	10	10 UJ	ug/l	10
1,3-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
1,4-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
1,2-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
2-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 R	ug/l	10	10 UJ	ug/l	10
2,2-oxybis(1-Chloropropane)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
4-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 R	ug/l	10	10 UJ	ug/l	10
N-Nitroso-di-n-propylamine	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
Hexachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
Nitrobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
Isophorone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
2-Nitrophenol	10 U	ug/l	10	10 U	ug/l	10	10 R	ug/l	10	10 UJ	ug/l	10
2,4-Dimethylphenol	10 U	ug/l	10	10 U	ug/l	10	10 R	ug/l	10	10 UJ	ug/l	10
bis(2-Chloroethoxy) methane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
2,4-Dichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 R	ug/l	10	10 UJ	ug/l	10
1,2,4-Trichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
Naphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
4-Chloroaniline	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
Hexachlorobutadiene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
4-Chloro-3-methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 R	ug/l	10	10 UJ	ug/l	10
2-Methylnaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
Hexachlorocyclopentadiene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
2,4,6-Trichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 R	ug/l	10	10 UJ	ug/l	10
2,4,5-Trichlorophenol	25 U	ug/l	25	25 U	ug/l	25	25 R	ug/l	25	25 UJ	ug/l	25
2-Chloronaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
2-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 UJ	ug/l	25
Dimethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
Acenaphthylene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
2,6-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
3-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 UJ	ug/l	25
Acenaphthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
2,4-Dinitrophenol	25 UJ	ug/l	25	25 UJ	ug/l	25	25 R	ug/l	25	25 UJ	ug/l	25
4-Nitrophenol	25 UJ	ug/l	25	25 UJ	ug/l	25	25 R	ug/l	25	25 UJ	ug/l	25
Dibenzofuran	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
2,4-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
Diethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
4-Chlorophenyl-phenylether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
Fluorene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
4-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 UJ	ug/l	25
4,6-Dinitro-2-methylphenol	25 U	ug/l	25	25 U	ug/l	25	25 R	ug/l	25	25 UJ	ug/l	25
N-Nitrosodiphenylamine (1)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
4-Bromophenyl-phenylether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
Hexachlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
Pentachlorophenol	25 U	ug/l	25	25 U	ug/l	25	25 R	ug/l	25	25 UJ	ug/l	25
Phenanthrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
Anthracene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
Carbazole	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
Di-n-butylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10

02/23/95 WHITING FIELD - PERIMETER SITES 15:17:40
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90175001			90174005			90174004			90174004RE		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHFBKG-1			WHFBKG2			WHFBKG3			WHFBKG3RE		
Collect Date:	15-OCT-93			14-OCT-93			14-OCT-93			14-OCT-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Fluoranthene												
Pyrene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Butylbenzylphthalate	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
3,3-Dichlorobenzidine	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Benzo (a) anthracene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Chrysene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
bis(2-Ethylhexyl) phthalate	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Di-n-octylphthalate	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Benzo (b) fluoranthene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Benzo (k) fluoranthene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Benzo (a) pyrene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Indeno (1,2,3-cd) pyrene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Dibenz (a,h) anthracene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Benzo (g,h,i) perylene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - PERIMETER SITES 15:17:40
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90177001			90177002			90178001			90175002		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHD1-1			WHD1-1B			WHD1-2			WHD1-3		
Collect Date:	18-OCT-93			18-OCT-93			19-OCT-93			15-OCT-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW	ug/l											
Phenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroethyl) ether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Chlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,3-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,4-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,2-oxybis(1-Chloropropane)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
N-Nitroso-di-n-propylamine	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Nitrobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Isophorone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitrophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dimethylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroethoxy) methane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2,4-Trichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Naphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloroaniline	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorobutadiene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloro-3-methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylnaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorocyclopentadiene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,6-Trichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,5-Trichlorophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
2-Chloronaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Dimethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acenaphthylene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,6-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
3-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Acenaphthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
4-Nitrophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Dibenzofuran	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Diethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chlorophenyl-phenylether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Fluorene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

02/23/95 WHITING FIELD - PERIMETER SITES 15:17:40
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90177001			90177002			90178001			90175002		
Site Locator	WHITING			WHITING			WHITING			WHITING		
Collect Date:	WHF1-1			WHF1-1B			WHF1-2			WHF1-3		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	25 U	ug/l		25	25 U	ug/l		25	25 U	ug/l		25
4-Nitrophenol	25 U	ug/l		25	25 U	ug/l		25	25 U	ug/l		25
4-Nitrophenylbenzene (1)	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
4-Bromophenyl-phenylether	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Hexachlorobenzene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Pentachlorophenol	25 U	ug/l		25	25 U	ug/l		25	25 U	ug/l		25
Phenanthrene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Anthracene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Carbazole	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Di-n-butylphthalate	12 UJ	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Fluoranthene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Pyrene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Butylbenzylphthalate	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
3,3-Dichlorobenzidine	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Benzo (a) anthracene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Chrysene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
bis(2-Ethylhexyl) phthalate	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Di-n-octylphthalate	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Benzo (b) fluoranthene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Benzo (k) fluoranthene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Benzo (a) pyrene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Indeno (1,2,3-cd) pyrene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Dibenz (a,h) anthracene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Benzo (g,h,i) perylene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE D = DOUBLE INTERMEDIATE SAMPLE E = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - PERIMETER SITES 15:17:40
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90178002			90178004			90188001			90188002		
Site Locator	WHITING			WHITING			WHITING			WHITING		
Collect Date:	WHF2-1			WHF2-1A			WHF9-1			WHF9-2		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW	ug/l											
Phenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroethyl) ether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Chlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,3-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,4-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,2-oxybis(1-Chloropropane)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
N-Nitroso-di-n-propylamine	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Nitrobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Isophorone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitrophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dimethylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroethoxy) methane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2,4-Trichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Naphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloroaniline	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorobutadiene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloro-3-methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylnaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorocyclopentadiene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,6-Trichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,5-Trichlorophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
2-Chloronaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Dimethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acenaphthylene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,6-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
3-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Acenaphthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrophenol	25 UJ	ug/l	25	25 U	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25
4-Nitrophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Dibenzofuran	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Diethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chlorophenyl-phenylether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Fluorene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

02/23/95 WHITING FIELD - PERIMETER SITES 15:17:40
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90178002			90178004			90188001			90188002		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF2-1			WHF2-1A			WHF9-1			WHF9-2		
Collect Date:	19-OCT-93			19-OCT-93			26-OCT-93			26-OCT-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
4,6-Dinitro-2-methylphenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
N-Nitrosodiphenylamine (1)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Bromophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pentachlorophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Phenanthrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Carbazole	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Di-n-butylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Butylbenzylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3,3-Dichlorobenzidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chrysene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Ethylhexyl) phthalate	10	U	ug/l	10	7	J	ug/l	10	10	U	ug/l	10
Di-n-octylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (b) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (k) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dibenz (a,h) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (g,h,i) perylene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE D = DOUBLE INTERMEDIATE SAMPLE E = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - PERIMETER SITES 15:17:40
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90189001			90189005			90189004			90194001		
Site Locator	WHITING			WHITING			WHITING			WHITING		
Collect Date:	27-OCT-93			27-OCT-93			27-OCT-93			29-OCT-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW	ug/l											
Phenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Chloroethyl) ether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Chlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,3-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,4-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Methylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,2-bis(1-Chloropropane)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Methylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
N-Nitroso-di-n-propylamine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Nitrobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Isophorone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Nitrophenol	10	U	ug/l	10	10	U	ug/l	10	10	R	ug/l	10
2,4-Dimethylphenol	10	U	ug/l	10	10	U	ug/l	10	10	R	ug/l	10
bis(2-Chloroethoxy) methane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	R	ug/l	10
1,2,4-Trichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Naphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chloroaniline	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobutadiene	10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10
4-Chloro-3-methylphenol	10	U	ug/l	10	10	U	ug/l	10	10	R	ug/l	10
2-Methylnaphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorocyclopentadiene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4,6-Trichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	R	ug/l	10
2,4,5-Trichlorophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
2-Chloronaphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Dimethylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Acenaphthylene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,6-Dinitrotoluene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Acenaphthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrophenol	25	UJ	ug/l	25	25	UJ	ug/l	25	25	U	ug/l	25
4-Nitrophenol	25	U	ug/l	25	25	U	ug/l	25	25	R	ug/l	25
Dibenzofuran	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrotoluene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Diethylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chlorophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Fluorene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10

02/23/95 WHITING FIELD - PERIMETER SITES 15:17:40
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90189001			90189005			90189004			90194001		
Site Locator	WHITING	WHF9-3		WHITING	WHF10-1		WHITING	WHF10-2		WHITING	WHF11-1	
Collect Date:	27-OCT-93			27-OCT-93			27-OCT-93			29-OCT-93		
	VALUE	QUAL UNITS	DL									
4-Nitroaniline	25 U	ug/l	25									
4,6-Dinitro-2-methylphenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 R	ug/l	25
N-Nitrosodiphenylamine (1)	10 U	ug/l	10									
4-Bromophenyl-phenylether	10 U	ug/l	10									
Hexachlorobenzene	10 U	ug/l	10									
Pentachlorophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 R	ug/l	25
Phenanthrene	10 U	ug/l	10									
Anthracene	10 U	ug/l	10									
Carbazole	10 U	ug/l	10									
Di-n-butylphthalate	10 U	ug/l	10									
Fluoranthene	10 U	ug/l	10									
Pyrene	10 U	ug/l	10									
Butylbenzylphthalate	10 U	ug/l	10									
3,3-Dichlorobenzidine	10 U	ug/l	10									
Benzo (a) anthracene	10 U	ug/l	10									
Chrysene	10 U	ug/l	10									
bis(2-Ethylhexyl) phthalate	10 U	ug/l	10									
Di-n-octylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	19	ug/l	10
Benzo (b) fluoranthene	10 U	ug/l	10									
Benzo (k) fluoranthene	10 U	ug/l	10									
Benzo (a) pyrene	10 U	ug/l	10									
Indeno (1,2,3-cd) pyrene	10 U	ug/l	10									
Dibenz (a,h) anthracene	10 U	ug/l	10									
Benzo (g,h,i) perylene	10 U	ug/l	10									

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - PERIMETER SITES 15:17:40
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90194001RE			90191002			90191001			90191001RE		
Site Locator	WHITING			WHITING			WHITING			WHITING		
Collect Date:	WHF11-1RE			WHF11-1B			WHF11-2			WHF11-2RE		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW	ug/l											
Phenol	10 R	ug/l	10	10 U	ug/l	10	10 R	ug/l	10	2 R	ug/l	10
bis(2-Chloroethyl) ether	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
2-Chlorophenol	10 R	ug/l	10	10 U	ug/l	10	10 R	ug/l	10	10 R	ug/l	10
1,3-Dichlorobenzene	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
1,4-Dichlorobenzene	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
1,2-Dichlorobenzene	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
2-Methylphenol	10 R	ug/l	10	10 U	ug/l	10	10 R	ug/l	10	10 R	ug/l	10
2,2-oxybis(1-Chloropropane)	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
4-Methylphenol	10 R	ug/l	10	10 U	ug/l	10	10 R	ug/l	10	10 R	ug/l	10
N-Nitroso-di-n-propylamine	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
Hexachloroethane	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
Nitrobenzene	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
Isophorone	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
2-Nitrophenol	10 R	ug/l	10	10 U	ug/l	10	10 R	ug/l	10	10 R	ug/l	10
2,4-Dimethylphenol	10 R	ug/l	10	10 U	ug/l	10	10 R	ug/l	10	10 R	ug/l	10
bis(2-Chloroethoxy) methane	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
2,4-Dichlorophenol	10 R	ug/l	10	10 U	ug/l	10	10 R	ug/l	10	10 R	ug/l	10
1,2,4-Trichlorobenzene	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
Naphthalene	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
4-Chloroaniline	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
Hexachlorobutadiene	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10
4-Chloro-3-methylphenol	10 R	ug/l	10	10 U	ug/l	10	10 R	ug/l	10	10 R	ug/l	10
2-Methylnaphthalene	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
Hexachlorocyclopentadiene	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
2,4,6-Trichlorophenol	10 R	ug/l	10	10 U	ug/l	10	10 R	ug/l	10	10 R	ug/l	10
2,4,5-Trichlorophenol	25 R	ug/l	25	25 U	ug/l	25	25 R	ug/l	25	25 R	ug/l	25
2-Chloronaphthalene	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
2-Nitroaniline	25 UJ	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 UJ	ug/l	25
Dimethylphthalate	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
Acenaphthylene	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
2,6-Dinitrotoluene	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
3-Nitroaniline	25 UJ	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 UJ	ug/l	25
Acenaphthene	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
2,4-Dinitrophenol	25 R	ug/l	25	25 UJ	ug/l	25	25 R	ug/l	25	25 R	ug/l	25
4-Nitrophenol	25 R	ug/l	25	25 U	ug/l	25	25 R	ug/l	25	25 R	ug/l	25
Dibenzofuran	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
2,4-Dinitrotoluene	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
Diethylphthalate	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
4-Chlorophenyl-phenylether	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
Fluorene	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10

02/23/95 WHITING FIELD - PERIMETER SITES 15:17:40
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90194001RE			90191002			90191001			90191001RE		
Site	WHITING			WHITING			WHITING		WHITING			
Locator	WHF11-1RE			WHF11-1B			WHF11-2		WHF11-2RE			
Collect Date:	29-OCT-93			28-OCT-93			28-OCT-93		28-OCT-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	25	UJ	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
4,6-Dinitro-2-methylphenol	25	R	ug/l	25	25	U	ug/l	25	25	R	ug/l	25
N-Nitrosodiphenylamine (1)	10	UJ	ug/l	10	10	U	ug/l	10	10	UJ	ug/l	10
4-Bromophenyl-phenylether	10	UJ	ug/l	10	10	U	ug/l	10	10	UJ	ug/l	10
Hexachlorobenzene	10	UJ	ug/l	10	10	U	ug/l	10	10	UJ	ug/l	10
Pentachlorophenol	25	R	ug/l	25	25	U	ug/l	25	25	R	ug/l	25
Phenanthrene	10	UJ	ug/l	10	10	U	ug/l	10	10	UJ	ug/l	10
Anthracene	10	UJ	ug/l	10	10	U	ug/l	10	10	UJ	ug/l	10
Carbazole	10	UJ	ug/l	10	10	U	ug/l	10	10	UJ	ug/l	10
Di-n-butylphthalate	10	UJ	ug/l	10	10	U	ug/l	10	10	UJ	ug/l	10
Fluoranthene	10	UJ	ug/l	10	10	U	ug/l	10	10	UJ	ug/l	10
Pyrene	10	UJ	ug/l	10	10	U	ug/l	10	10	UJ	ug/l	10
Butylbenzylphthalate	10	UJ	ug/l	10	10	U	ug/l	10	10	UJ	ug/l	10
3,3-Dichlorobenzidine	10	UJ	ug/l	10	10	U	ug/l	10	10	UJ	ug/l	10
Benzo (a) anthracene	10	UJ	ug/l	10	10	U	ug/l	10	10	UJ	ug/l	10
Chrysene	10	UJ	ug/l	10	10	U	ug/l	10	10	UJ	ug/l	10
bis(2-Ethylhexyl) phthalate	10	UJ	ug/l	10	10	U	ug/l	10	10	UJ	ug/l	10
Di-n-octylphthalate	17	J	ug/l	10	10	U	ug/l	10	4	J	ug/l	10
Benzo (b) fluoranthene	10	UJ	ug/l	10	10	U	ug/l	10	10	UJ	ug/l	10
Benzo (k) fluoranthene	10	UJ	ug/l	10	10	U	ug/l	10	10	UJ	ug/l	10
Benzo (a) pyrene	10	UJ	ug/l	10	10	U	ug/l	10	10	UJ	ug/l	10
Indeno (1,2,3-cd) pyrene	10	UJ	ug/l	10	10	U	ug/l	10	10	UJ	ug/l	10
Dibenz (a,h) anthracene	10	UJ	ug/l	10	10	U	ug/l	10	10	UJ	ug/l	10
Benzo (g,h,i) perylene	10	UJ	ug/l	10	10	U	ug/l	10	10	UJ	ug/l	10

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - PERIMETER SITES 15:17:40
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90190001			90190002			90196002			90198002		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF11-3			WHF11-3A			WHF12-1			WHF13-1		
Collect Date:	28-OCT-93			28-OCT-93			01-NOV-93			02-NOV-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW	ug/l											
Phenol	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroethyl) ether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Chlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,3-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,4-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,2-oxybis(1-Chloropropane)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
N-Nitroso-di-n-propylamine	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Nitrobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Isophorone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitrophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dimethylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroethoxy) methane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2,4-Trichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Naphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloroaniline	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorobutadiene	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10
4-Chloro-3-methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylnaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorocyclopentadiene	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10
2,4,6-Trichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,5-Trichlorophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
2-Chloronaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Dimethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acenaphthylene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,6-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
3-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Acenaphthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrophenol	25 UJ	ug/l	25	25 U	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25
4-Nitrophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Dibenzofuran	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Diethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chlorophenyl-phenylether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Fluorene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

02/23/95 WHITING FIELD - PERIMETER SITES 15:17:40
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90190001			90190002			90196002			90198002		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF11-3			WHF11-3A			WHF12-1			WHF13-1		
Collect Date:	28-OCT-93			28-OCT-93			01-NOV-93			02-NOV-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25	25	UJ	ug/l	25
4,6-Dinitro-2-methylphenol	25	U	ug/l	25	25	U	ug/l	25	25	UJ	ug/l	25
N-Nitrosodiphenylamine (1)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Bromophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	UJ	ug/l	10
Pentachlorophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Phenanthrone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Carbazole	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Di-n-butylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Butylbenzylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3,3-Dichlorobenzidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chrysene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Ethylhexyl) phthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Di-n-octylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (b) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (k) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dibenz (a,h) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (g,h,i) perylene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - PERIMETER SITES 15:17:40
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90198001			90198003			90199002			90198004		
Site Locator	WHITING			WHITING			WHITING			WHITING		
Collect Date:	02-NOV-93			02-NOV-93			03-NOV-93			02-NOV-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW	ug/l											
Phenol	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10
bis(2-Chloroethyl) ether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Chlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,3-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,4-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,2-oxybis(1-Chloropropane)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
N-Nitroso-di-n-propylamine	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Nitrobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Isophorone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitrophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dimethylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroethoxy) methane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2,4-Trichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Naphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloroaniline	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorobutadiene	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10
4-Chloro-3-methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylnaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorocyclopentadiene	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10
2,4,6-Trichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,5-Trichlorophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
2-Chloronaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Dimethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acenaphthylene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,6-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
3-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Acenaphthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrophenol	25 UJ	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25
4-Nitrophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Dibenzofuran	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Diethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chlorophenyl-phenylether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Fluorene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

02/23/95 WHITING FIELD - PERIMETER SITES 15:17:40
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90198001			90198003			90199002			90198004		
Site Locator	WHITING			WHITING			WHITING			WHITING		
Collect Date:	WHF13-1B			WHF13-2			WHF14-1			WHF14-2		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	25 UJ	ug/l		25	25 UJ	ug/l		25	25 UJ	ug/l		25
4,6-Dinitro-2-methylphenol	25 UJ	ug/l		25	25 UJ	ug/l		25	25 UJ	ug/l		25
N-Nitrosodiphenylamine (1)	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
4-Bromophenyl-phenylether	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Hexachlorobenzene	10 UJ	ug/l	10		10 UJ	ug/l	10		10 UJ	ug/l	10	
Pentachlorophenol	25 U	ug/l	25		25 U	ug/l	25		25 U	ug/l	25	
Phenanthren	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Anthracene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Carbazole	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Di-n-butylphthalate	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Fluoranthene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Pyrene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Butylbenzylphthalate	10 U	ug/l	10		10 U	ug/l	10		2 J	ug/l	10	
3,3-Dichlorobenzidine	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Benzo (a) anthracene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Chrysene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
bis(2-Ethylhexyl) phthalate	10 U	ug/l	10		10	ug/l	10		7 J	ug/l	10	18
Di-n-octylphthalate	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Benzo (b) fluoranthene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Benzo (k) fluoranthene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Benzo (a) pyrene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Indeno (1,2,3-cd) pyrene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Dibenz (a,h) anthracene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Benzo (g,h,i) perylene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE D = DOUBLE INTERMEDIATE SAMPLE E = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - PERIMETER SITES 15:17:40
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90271002	90210003	90210004	90210002								
Site Locator	WHITING WHF15-1	WHITING WHF15-2B	WHITING WHF15-2A	WHITING WHF15-2C								
Collect Date:	03-DEC-93	09-NOV-93	09-NOV-93	09-NOV-93								
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
CLP SEMIVOLATILES 90-SOW	ug/l											
Phenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroethyl) ether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Chlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,3-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,4-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,2-oxybis(1-Chloropropane)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
N-Nitroso-di-n-propylamine	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Nitrobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Isophorone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitrophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dimethylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroethoxy) methane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2,4-Trichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Naphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloroaniline	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorobutadiene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloro-3-methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylnaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorocyclopentadiene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,6-Trichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,5-Trichlorophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
2-chloronaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Dimethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acenaphthylene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,6-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
3-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Acenaphthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrophenol	25 UJ	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25
4-Nitrophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Dibenzofuran	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Diethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chlorophenyl-phenylether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Fluorene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

02/23/95 WHITING FIELD - PERIMETER SITES 15:17:40
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90271002			90210003			90210004			90210002		
Site	WHITING			WHITING			WHITING		WHITING			
Locator	WHF15-1			WHF15-2B			WHF15-2BA		WHF15-2C			
Collect Date:	03-DEC-93			09-NOV-93			09-NOV-93		09-NOV-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	25	UJ	ug/l	25	25	UJ	ug/l	25	25	UJ	ug/l	25
4,6-Dinitro-2-methylphenol	25	U	ug/l	25	25	UJ	ug/l	25	25	UJ	ug/l	25
N-Nitrosodiphenylamine (1)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Bromophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pentachlorophenol	25	UJ	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Phenanthrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Carbazole	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Di-n-butylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Butylbenzylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3,3-Dichlorobenzidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chrysene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Ethylhexyl) phthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Di-n-octylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (b) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (k) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dibenz (a,h) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (g,h,i) perylene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE D = DOUBLE INTERMEDIATE SAMPLE E = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - PERIMETER SITES 15:17:40
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90210001	90203001	90199005	90199004								
Site	WHITING	WHITING	WHITING	WHITING								
Locator	WHF15-2D	WHF15-3B	WHF15-3C	WHF15-3D								
Collect Date:	09-NOV-93	14-NOV-93	03-NOV-93	03-NOV-93								
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS								
CLP SEMIVOLATILES 90-SOW	ug/l											
Phenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroethyl) ether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Chlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,3-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,4-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,2-oxybis(1-Chloropropane)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
N-Nitroso-di-n-propylamine	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Nitrobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Isophorone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitrophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dimethylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroethoxy) methane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2,4-Trichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Naphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloroaniline	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorobutadiene	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10
4-Chloro-3-methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylnaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorocyclopentadiene	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10
2,4,6-Trichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,5-Trichlorophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
2-Chloronaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Dimethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acenaphthylene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,6-Dinitrotoluene	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
3-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Acenaphthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrophenol	25 UJ	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25
4-Nitrophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Dibenzofuran	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Diethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chlorophenyl-phenylether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Fluorene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

02/23/95 WHITING FIELD - PERIMETER SITES 15:17:40
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90210001			90203001			90199005			90199004		
Site Locator	WHITING			WHITING			WHITING			WHITING		
Collect Date:	09-NOV-93			14-NOV-93			03-NOV-93			03-NOV-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	25	UJ	ug/l	25	25	U	ug/l	25	25	UJ	ug/l	25
4,6-Dinitro-2-methylphenol	25	UJ	ug/l	25	25	U	ug/l	25	25	UJ	ug/l	25
N-Nitrosodiphenylamine (1)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Bromophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	UJ	ug/l	10
Pentachlorophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Phenanthrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Carbazole	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Di-n-butylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Butylbenzylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3,3-Dichlorobenzidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chrysene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Ethylhexyl) phthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Di-n-octylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (b) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (k) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dibenz (a,h) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (g,h,i) perylene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - PERIMETER SITES 15:17:40
GOUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:
Site
Locator
Collect Date:

90199003

70177003
WHITING

WHT 15-4

03-NOV-9

9027100

JULY, 1908

WHT 15-

03-DEC-

9021400

70E 1400-1

WATTING
WHF15-6

24-NOV-9

90214001

702-1400.

WHT 111
WHE15-6

24-NOV-6

	VALUE	QUAL UNITS	DL									
CLP SEMIVOLATILES 90-SOW	ug/l											
Phenol	10 U	ug/l	10									
bis(2-Chloroethyl) ether	10 U	ug/l	10									
2-Chlorophenol	10 U	ug/l	10									
1,3-Dichlorobenzene	10 U	ug/l	10									
1,4-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	42	ug/l	10	10 U	ug/l	10
1,2-Dichlorobenzene	10 U	ug/l	10									
2-Methylphenol	10 U	ug/l	10									
2,2-oxybis(1-Chloropropane)	10 U	ug/l	10									
4-Methylphenol	10 U	ug/l	10									
N-Nitroso-di-n-propylamine	10 U	ug/l	10									
Hexachloroethane	10 U	ug/l	10									
Nitrobenzene	10 U	ug/l	10									
Isophorone	10 U	ug/l	10									
2-Nitrophenol	10 U	ug/l	10									
2,4-Dimethylphenol	10 U	ug/l	10									
bis(2-Chloroethoxy) methane	10 U	ug/l	10									
2,4-Dichlorophenol	10 U	ug/l	10									
1,2,4-Trichlorobenzene	10 U	ug/l	10									
Naphthalene	10 U	ug/l	10	10 U	ug/l	10	7 J	ug/l	10	10 U	ug/l	10
4-Chloroaniline	10 U	ug/l	10									
Hexachlorobutadiene	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloro-3-methylphenol	10 U	ug/l	10									
2-Methylnaphthalene	10 U	ug/l	10									
Hexachlorocyclopentadiene	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,6-Trichlorophenol	10 U	ug/l	10									
2,4,5-Trichlorophenol	25 U	ug/l	25									
2-Chloronaphthalene	10 U	ug/l	10									
2-Nitroaniline	25 U	ug/l	25									
Dimethylphthalate	10 U	ug/l	10									
Acenaphthylene	10 U	ug/l	10									
2,6-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10
3-Nitroaniline	25 U	ug/l	25									
Acenaphthene	10 U	ug/l	10									
2,4-Dinitrophenol	25 UJ	ug/l	25									
4-Nitrophenol	25 U	ug/l	25	25 UJ	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Dibenzofuran	10 U	ug/l	10									
2,4-Dinitrotoluene	10 U	ug/l	10									
Diethylphthalate	10 U	ug/l	10	10 U	ug/l	10	2 J	ug/l	10	10 U	ug/l	10
4-Chlorophenyl-phenylether	10 U	ug/l	10									

02/23/95 WHITING FIELD - PERIMETER SITES 15:17:40
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90199003			90271001			90214004			90214003		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF15-4			WHF15-5			WHF15-6B			WHF15-6D		
Collect Date:	03-NOV-93			03-DEC-93			24-NOV-93			24-NOV-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	25	UJ	ug/l	25	25	UJ	ug/l	25	25	UJ	ug/l	25
4,6-Dinitro-2-methylphenol	25	UJ	ug/l	25	25	U	ug/l	25	25	UJ	ug/l	25
N-Nitrosodiphenylamine (1)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Bromophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobenzene	10	UJ	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pentachlorophenol	25	U	ug/l	25	25	UJ	ug/l	25	25	U	ug/l	25
Phenanthrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Carbazole	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Di-n-butylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Butylbenzylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3,3-Dichlorobenzidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chrysene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Ethylhexyl) phthalate	10	U	ug/l	10	21	ug/l	10	10	U	ug/l	10	10
Di-n-octylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (b) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (k) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dibenz (a,h) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (g,h,i) perylene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - PERIMETER SITES 15:17:40
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90226004			90214002			90272002			90272001		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF16-1			WHF16-2			WHF16-2B			WHF16-2C		
Collect Date:	16-NOV-93			24-NOV-93			06-DEC-93			06-DEC-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW	ug/l											
Phenol	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
bis(2-Chloroethyl) ether	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	10	
2-Chlorophenol	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
1,3-Dichlorobenzene	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	10	
1,4-Dichlorobenzene	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	10	
1,2-Dichlorobenzene	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	10	
2-Methylphenol	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
2,2-oxybis(1-Chloropropane)	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	10	
4-Methylphenol	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
N-Nitroso-di-n-propylamine	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	10	
Hexachloroethane	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	10	
Nitrobenzene	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	10	
Isophorone	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	10	
2-Nitrophenol	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
2,4-Dimethylphenol	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
bis(2-Chloroethoxy) methane	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	10	
2,4-Dichlorophenol	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
1,2,4-Trichlorobenzene	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	10	
Naphthalene	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	10	
4-Chloroaniline	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Hexachlorobutadiene	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	10	
4-Chloro-3-methylphenol	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	10	
2-Methylnaphthalene	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	10	
Hexachlorocyclopentadiene	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	10	
2,4,6-Trichlorophenol	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
2,4,5-Trichlorophenol	25 U	ug/l	25		25 U	ug/l	25		25 U	ug/l	25	
2-Chloronaphthalene	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	10	
2-Nitroaniline	25 U	ug/l	25		25 UJ	ug/l	25		25 U	ug/l	25	
Dimethylphthalate	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	10	
Acenaphthylene	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	10	
2,6-Dinitrotoluene	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	10	
3-Nitroaniline	25 U	ug/l	25		25 UJ	ug/l	25		25 U	ug/l	25	
Acenaphthene	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	10	
2,4-Dinitrophenol	25 UJ	ug/l	25		25 UJ	ug/l	25		25 UJ	ug/l	25	
4-Nitrophenol	25 UJ	ug/l	25		25 U	ug/l	25		25 UJ	ug/l	25	
Dibenzofuran	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	10	
2,4-Dinitrotoluene	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	10	
Diethylphthalate	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	10	
4-Chlorophenyl-phenylether	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	10	
Fluorene	10 U	ug/l	10		10 UJ	ug/l	10		10 U	ug/l	10	

02/23/95 WHITING FIELD - PERIMETER SITES 15:17:40
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90226004			90214002			90272002			90272001		
Site Locator	WHITING WHD16-1			WHITING WHD16-2			WHITING WHD16-2B			WHITING WHD16-2C		
Collect Date:	16-NOV-93			24-NOV-93			06-DEC-93			06-DEC-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	25	UJ	ug/l	25	25	UJ	ug/l	25	25	UJ	ug/l	25
4,6-Dinitro-2-methylphenol	25	U	ug/l	25	25	UJ	ug/l	25	25	U	ug/l	25
N-Nitrosodiphenylamine (1)	10	U	ug/l	10	10	UJ	ug/l	10	10	U	ug/l	10
4-Bromophenyl-phenylether	10	U	ug/l	10	10	UJ	ug/l	10	10	U	ug/l	10
Hexachlorobenzene	10	U	ug/l	10	10	UJ	ug/l	10	10	U	ug/l	10
Pentachlorophenol	25	U	ug/l	25	25	U	ug/l	25	25	UJ	ug/l	25
Phenanthrene	10	U	ug/l	10	10	UJ	ug/l	10	10	U	ug/l	10
Anthracene	10	U	ug/l	10	10	UJ	ug/l	10	10	U	ug/l	10
Carbazole	10	U	ug/l	10	10	UJ	ug/l	10	10	U	ug/l	10
Di-n-butylphthalate	10	U	ug/l	10	10	UJ	ug/l	10	10	U	ug/l	10
Fluoranthene	10	U	ug/l	10	10	UJ	ug/l	10	10	U	ug/l	10
Pyrene	10	U	ug/l	10	10	UJ	ug/l	10	10	U	ug/l	10
Butylbenzylphthalate	10	U	ug/l	10	10	UJ	ug/l	10	10	U	ug/l	10
3,3-Dichlorobenzidine	10	U	ug/l	10	10	UJ	ug/l	10	10	U	ug/l	10
Benzo (a) anthracene	10	U	ug/l	10	10	UJ	ug/l	10	10	U	ug/l	10
Chrysene	10	U	ug/l	10	10	UJ	ug/l	10	10	U	ug/l	10
bis(2-Ethylhexyl) phthalate	10	U	ug/l	10	10	UJ	ug/l	10	10	U	ug/l	10
Di-n-octylphthalate	10	U	ug/l	10	10	UJ	ug/l	10	10	U	ug/l	10
Benzo (b) fluoranthene	10	U	ug/l	10	10	UJ	ug/l	10	10	U	ug/l	10
Benzo (k) fluoranthene	10	U	ug/l	10	10	UJ	ug/l	10	10	U	ug/l	10
Benzo (a) pyrene	10	U	ug/l	10	10	UJ	ug/l	10	10	U	ug/l	10
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	10	UJ	ug/l	10	10	U	ug/l	10
Dibenz (a,h) anthracene	10	U	ug/l	10	10	UJ	ug/l	10	10	U	ug/l	10
Benzo (g,h,i) perylene	10	U	ug/l	10	10	UJ	ug/l	10	10	U	ug/l	10

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - PERIMETER SITES 15:17:40
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90225001	90221002			90221001			90220001				
Site	WHITING											
Locator	WHF16-3B	WHF16-3C	WHF16-3D	WHF16-3C	WHF16-3D	WHF16-3D	WHF16-3C	WHF16-3D	WHF16-3D	WHF16-3D		
Collect Date:	15-NOV-93	12-NOV-93	12-NOV-93	12-NOV-93	12-NOV-93	12-NOV-93	12-NOV-93	11-NOV-93	11-NOV-93	11-NOV-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW	ug/l											
Phenol	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
bis(2-Chloroethyl) ether	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
2-Chlorophenol	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
1,3-Dichlorobenzene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
1,4-Dichlorobenzene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
1,2-Dichlorobenzene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
2-Methylphenol	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
2,2-oxybis(1-Chloropropane)	10 U	ug/l	10		10 UJ	ug/l	10		10 UJ	ug/l	10	
4-Methylphenol	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
N-Nitroso-di-n-propylamine	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Hexachloroethane	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Nitrobenzene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Isophorone	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
2-Nitrophenol	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
2,4-Dimethylphenol	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
bis(2-Chloroethoxy) methane	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
2,4-Dichlorophenol	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
1,2,4-Trichlorobenzene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Naphthalene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
4-Chloroaniline	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Hexachlorobutadiene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
4-Chloro-3-methylphenol	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
2-Methylnaphthalene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Hexachlorocyclopentadiene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
2,4,6-Trichlorophenol	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
2,4,5-Trichlorophenol	25 U	ug/l	25		25 U	ug/l	25		26 U	ug/l	26	
2-Chloronaphthalene	10 U	ug/l	10		10 U	ug/l	10		11 U	ug/l	11	
2-Nitroaniline	25 U	ug/l	25		25 U	ug/l	25		26 U	ug/l	26	
Dimethylphthalate	10 U	ug/l	10		10 U	ug/l	10		11 U	ug/l	11	
Acenaphthylene	10 U	ug/l	10		10 U	ug/l	10		11 U	ug/l	11	
2,6-Dinitrotoluene	10 U	ug/l	10		10 U	ug/l	10		11 U	ug/l	11	
3-Nitroaniline	25 U	ug/l	25		25 U	ug/l	25		26 U	ug/l	26	
Acenaphthene	10 U	ug/l	10		10 U	ug/l	10		11 U	ug/l	11	
2,4-Dinitrophenol	25 UJ	ug/l	25		25 UJ	ug/l	25		26 UJ	ug/l	26	
4-Nitrophenol	25 UJ	ug/l	25		25 U	ug/l	25		26 UJ	ug/l	26	
Dibenzofuran	10 U	ug/l	10		10 U	ug/l	10		11 U	ug/l	11	
2,4-Dinitrotoluene	10 U	ug/l	10		10 U	ug/l	10		11 U	ug/l	11	
Diethylphthalate	10 U	ug/l	10		10 U	ug/l	10		11 U	ug/l	11	
4-Chlorophenyl-phenylether	10 U	ug/l	10		10 U	ug/l	10		11 U	ug/l	11	
Fluorene	10 U	ug/l	10		10 U	ug/l	10		11 U	ug/l	11	

02/23/95 WHITING FIELD - PERIMETER SITES 15:17:40
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90225001			90221002			90221001			90220001		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF16-3B			WHF16-3C			WHF16-3CD			WHF16-3D		
Collect Date:	15-NOV-93			12-NOV-93			12-NOV-93			11-NOV-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	25	UJ	ug/l	25	25	UJ	ug/l	25	26	UJ	ug/l	26
4,6-Dinitro-2-methylphenol	25	U	ug/l	25	25	UJ	ug/l	25	26	U	ug/l	25
N-Nitrosodiphenylamine (1)	10	U	ug/l	10	10	U	ug/l	10	11	U	ug/l	11
4-Bromophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	11	U	ug/l	10
Hexachlorobenzene	10	U	ug/l	10	10	U	ug/l	10	11	U	ug/l	10
Pentachlorophenol	25	UJ	ug/l	25	25	U	ug/l	25	26	UJ	ug/l	25
Phenanthrene	10	U	ug/l	10	10	U	ug/l	10	11	U	ug/l	10
Anthracene	10	U	ug/l	10	10	U	ug/l	10	11	U	ug/l	10
Carbazole	10	U	ug/l	10	10	U	ug/l	10	11	U	ug/l	10
Di-n-butylphthalate	10	U	ug/l	10	10	U	ug/l	10	11	U	ug/l	10
Fluoranthene	10	U	ug/l	10	10	U	ug/l	10	11	U	ug/l	10
Pyrene	10	U	ug/l	10	10	U	ug/l	10	11	U	ug/l	10
Butylbenzylphthalate	10	U	ug/l	10	10	U	ug/l	10	11	U	ug/l	10
3,3-Dichlorobenzidine	10	U	ug/l	10	10	U	ug/l	10	11	U	ug/l	10
Benzo (a) anthracene	10	U	ug/l	10	10	U	ug/l	10	11	U	ug/l	10
Chrysene	10	U	ug/l	10	10	U	ug/l	10	11	U	ug/l	10
bis(2-Ethylhexyl) phthalate	10	U	ug/l	10	10	U	ug/l	10	8	J	ug/l	10
Di-n-octylphthalate	10	UJ	ug/l	10	10	U	ug/l	10	11	UJ	ug/l	11
Benzo (b) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	11	U	ug/l	10
Benzo (k) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	11	U	ug/l	10
Benzo (a) pyrene	10	U	ug/l	10	10	U	ug/l	10	11	U	ug/l	10
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	10	U	ug/l	10	11	U	ug/l	11
Dibenz (a,h) anthracene	10	U	ug/l	10	10	U	ug/l	10	11	U	ug/l	10
Benzo (g,h,i) perylene	10	U	ug/l	10	10	U	ug/l	10	11	U	ug/l	10

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - PERIMETER SITES 15:17:40
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90220002			90226001			90226002			90226003		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF16-3DA			WHF16-4B			WHF16-4BA			WHF16-4CD		
Collect Date:	11-NOV-93			16-NOV-93			16-NOV-93			16-NOV-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW	ug/l											
Phenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroethyl) ether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Chlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,3-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,4-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,2-oxybis(1-Chloropropane)	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
N-Nitroso-di-n-propylamine	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Nitrobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Isophorone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitrophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dimethylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroethoxy) methane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2,4-Trichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Naphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloroaniline	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorobutadiene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloro-3-methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylnaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorocyclopentadiene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,6-Trichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,5-Trichlorophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
2-Chloronaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Dimethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acenaphthylene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,6-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
3-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Acenaphthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrophenol	25 U	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25
4-Nitrophenol	25 U	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25
Dibenzofuran	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Diethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chlorophenyl-phenylether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Fluorene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

02/23/95 WHITING FIELD - PERIMETER SITES 15:17:40
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90220002				90226001				90226002				90226003			
Site	WHITING															
Locator	WHF16-3DA				WHF16-4B				WHF16-4BA				WHF16-4CD			
Collect Date:	11-NOV-93				16-NOV-93				16-NOV-93				16-NOV-93			
	VALUE	QUAL	UNITS	DL												
4-Nitroaniline	25	UJ	ug/l	25												
4,6-Dinitro-2-methylphenol	25	UJ	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
N-Nitrosodiphenylamine (1)	10	U	ug/l	10												
4-Bromophenyl-phenylether	10	U	ug/l	10												
Hexachlorobenzene	10	U	ug/l	10												
Pentachlorophenol	25	U	ug/l	25												
Phenanthrene	10	U	ug/l	10												
Anthracene	10	U	ug/l	10												
Carbazole	10	U	ug/l	10												
Di-n-butylphthalate	10	U	ug/l	10												
Fluoranthene	10	U	ug/l	10												
Pyrene	10	U	ug/l	10												
Butylbenzylphthalate	10	U	ug/l	10												
3,3-Dichlorobenzidine	10	U	ug/l	10												
Benzo (a) anthracene	10	U	ug/l	10												
Chrysene	10	U	ug/l	10												
bis(2-Ethylhexyl) phthalate	10	U	ug/l	10												
Di-n-octylphthalate	10	U	ug/l	10												
Benzo (b) fluoranthene	10	U	ug/l	10												
Benzo (k) fluoranthene	10	U	ug/l	10												
Benzo (a) pyrene	10	U	ug/l	10												
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10												
Dibenz (a,h) anthracene	10	U	ug/l	10												
Benzo (g,h,i) perylene	10	U	ug/l	10												

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - PERIMETER SITES 15:17:40
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90225002			90236003			90178005			90180002		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF16-4D			WHF16-5			WHF17-1			WHF17-1B		
Collect Date:	15-NOV-93			17-NOV-93			19-OCT-93			20-OCT-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOM	ug/l											
Phenol	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
bis(2-Chloroethyl) ether	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
2-chlorophenol	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
1,3-Dichlorobenzene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
1,4-Dichlorobenzene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
1,2-Dichlorobenzene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
2-Methylphenol	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
2,2-bis(1-Chloropropane)	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
4-Methylphenol	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
N-Nitrosodi-n-propylamine	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Hexachloroethane	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Nitrobenzene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Isophorone	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
2-Nitrophenol	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
2,4-Dimethylphenol	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
bis(2-Chloroethoxy) methane	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
2,4-Dichlorophenol	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
1,2,4-Trichlorobenzene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Naphthalene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
4-Chloroaniline	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Hexachlorobutadiene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
4-Chloro-3-methylphenol	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
2-Methylnaphthalene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Hexachlorocyclopentadiene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
2,4,6-Trichlorophenol	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
2,4,5-Trichlorophenol	26 U	ug/l	26		50 U	ug/l	50		25 U	ug/l	25	
2-Chloronaphthalene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
2-Nitroaniline	26 U	ug/l	26		50 U	ug/l	50		25 U	ug/l	25	
Dimethylphthalate	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Acenaphthylene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
2,6-Dinitrotoluene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
3-Nitroaniline	26 U	ug/l	26		50 U	ug/l	50		25 U	ug/l	25	
Acenaphthene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
2,4-Dinitrophenol	26 UJ	ug/l	26		50 U	ug/l	50		25 U	ug/l	25	
4-Nitrophenol	26 UJ	ug/l	26		50 U	ug/l	50		25 U	ug/l	25	
Dibenzofuran	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
2,4-Dinitrotoluene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Diethylphthalate	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
4-Chlorophenyl-phenylether	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Fluorene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	

02/23/95 WHITING FIELD - PERIMETER SITES 15:17:40
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number: Site Locator Collect Date:	90225002 WHITING WHD16-4D 15-NOV-93	90236003 WHITING WHD16-5 17-NOV-93	90178005 WHITING WHD17-1 19-OCT-93	90180002 WHITING WHD17-1B 20-OCT-93					
	VALUE QUAL UNITS	DL	VALUE QUAL UNITS	DL	VALUE QUAL UNITS	DL	VALUE QUAL UNITS	DL	DL
4-Nitroaniline	26 UJ ug/l	26	50 U ug/l	50	25 U ug/l	25	25 U ug/l	25	25 ug/l
4,6-Dinitro-2-methylphenol	26 U ug/l	26	50 U ug/l	50	25 U ug/l	25	25 U ug/l	25	25 ug/l
N-Nitrosodiphenylamine (1)	10 U ug/l	10	10 U ug/l	10	10 U ug/l	10	10 U ug/l	10	10 ug/l
4-Bromophenyl-phenylether	10 U ug/l	10	10 U ug/l	10	10 U ug/l	10	10 U ug/l	10	10 ug/l
Hexachlorobenzene	10 U ug/l	10	10 U ug/l	10	10 U ug/l	10	10 U ug/l	10	10 ug/l
Pentachlorophenol	26 UJ ug/l	26	50 U ug/l	50	25 U ug/l	25	25 U ug/l	25	25 ug/l
Phenanthrene	10 U ug/l	10	10 U ug/l	10	10 U ug/l	10	10 U ug/l	10	10 ug/l
Anthracene	10 U ug/l	10	10 U ug/l	10	10 U ug/l	10	10 U ug/l	10	10 ug/l
Carbazole	10 U ug/l	10	- ug/l	-	10 U ug/l	10	10 U ug/l	10	10 ug/l
Di-n-butylphthalate	10 U ug/l	10	10 UJ ug/l	10	10 U ug/l	10	10 U ug/l	10	10 ug/l
Fluoranthene	10 U ug/l	10	10 U ug/l	10	10 U ug/l	10	10 U ug/l	10	10 ug/l
Pyrene	10 U ug/l	10	10 U ug/l	10	10 U ug/l	10	10 U ug/l	10	10 ug/l
Butylbenzylphthalate	10 U ug/l	10	10 U ug/l	10	10 U ug/l	10	10 U ug/l	10	10 ug/l
3,3-Dichlorobenzidine	10 U ug/l	10	20 U ug/l	20	10 U ug/l	10	10 U ug/l	10	10 ug/l
Benzo (a) anthracene	10 U ug/l	10	10 U ug/l	10	10 U ug/l	10	10 U ug/l	10	10 ug/l
Chrysene	10 U ug/l	10	10 U ug/l	10	10 U ug/l	10	10 U ug/l	10	10 ug/l
bis(2-Ethylhexyl) phthalate	10 U ug/l	10	2 J ug/l	10	10 U ug/l	10	10 U ug/l	10	10 ug/l
Di-n-octylphthalate	10 UJ ug/l	10	10 U ug/l	10	10 U ug/l	10	10 U ug/l	10	10 ug/l
Benzo (b) fluoranthene	10 U ug/l	10	10 U ug/l	10	10 U ug/l	10	10 U ug/l	10	10 ug/l
Benzo (k) fluoranthene	10 U ug/l	10	10 U ug/l	10	10 U ug/l	10	10 U ug/l	10	10 ug/l
Benzo (a) pyrene	10 U ug/l	10	10 U ug/l	10	10 U ug/l	10	10 U ug/l	10	10 ug/l
Indeno (1,2,3-cd) pyrene	10 U ug/l	10	10 U ug/l	10	10 U ug/l	10	10 U ug/l	10	10 ug/l
Dibenz (a,h) anthracene	10 U ug/l	10	10 U ug/l	10	10 U ug/l	10	10 U ug/l	10	10 ug/l
Benzo (g,h,i) perylene	10 U ug/l	10	10 U ug/l	10	10 U ug/l	10	10 U ug/l	10	10 ug/l

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - PERIMETER SITES 15:17:40
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90179001	90179002	90181001	90181002								
Site Locator	WHITING WHF17-2B	WHITING WHF17-2BA	WHITING WHF17-3	WHITING WHF18-1								
Collect Date:	20-OCT-93	20-OCT-93	21-OCT-93	21-OCT-93								
	VALUE	QUAL UNITS	DL	VALUE								
CLP SEMIVOLATILES 90-SOW	ug/l											
Phenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
bis(2-Chloroethyl) ether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Chlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,3-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,4-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,2-oxybis(1-Chloropropane)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
N-Nitroso-di-n-propylamine	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Nitrobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Isophorone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitrophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dimethylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroethoxy)-methane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2,4-Trichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Naphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloroaniline	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorobutadiene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloro-3-methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylnaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorocyclopentadiene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,6-Trichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,5-Trichlorophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
2-Chloronaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Dimethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acenaphthylene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,6-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
3-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Acenaphthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
4-Nitrophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Dibenzofuran	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Diethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chlorophenyl-phenylether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Fluorene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

02/23/95 WHITING FIELD - PERIMETER SITES 15:17:40
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number: Site Locator Collect Date:	90179001			90179002			90181001			90181002		
	WHITING WHF17-2B 20-OCT-93	WHITING WHF17-2BA 20-OCT-93	WHITING WHF17-3 21-OCT-93	WHITING WHF18-1 21-OCT-93								
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
4-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
4,6-Dinitro-2-methylphenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
N-Nitrosodiphenylamine (1)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Bromophenyl-phenylether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Pentachlorophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Phenanthrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Anthracene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Carbazole	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Di-n-butylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Fluoranthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Pyrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Butylbenzylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
3,3-Dichlorobenzidine	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzo (a) anthracene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chrysene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Ethylhexyl) phthalate	10 U	ug/l	10	7 J	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Di-n-octylphthalate	10 U	ug/l	10	4 J	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzo (b) fluoranthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzo (k) fluoranthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzo (a) pyrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Indeno (1,2,3-cd) pyrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Dibenz (a,h) anthracene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzo (g,h,i) perylene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - PERIMETER SITES 15:17:40
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90181003	90186001
Site	WHITING	WHITING
Locator	WHD18-2	WHD18-3
Collect Date:	21-OCT-93	25-OCT-93

	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW	ug/l							
Phenol	10	U	ug/l	10	10	U	ug/l	10
bis(2-Chloroethyl) ether	10	U	ug/l	10	10	U	ug/l	10
2-Chlorophenol	10	U	ug/l	10	10	U	ug/l	10
1,3-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10
1,4-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10
1,2-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10
2-Methylphenol	10	U	ug/l	10	10	U	ug/l	10
2,2-oxybis(1-Chloropropane)	10	U	ug/l	10	10	U	ug/l	10
4-Methylphenol	10	U	ug/l	10	10	U	ug/l	10
N-Nitroso-di-n-propylamine	10	U	ug/l	10	10	U	ug/l	10
Hexachloroethane	10	U	ug/l	10	10	U	ug/l	10
Nitrobenzene	10	U	ug/l	10	10	U	ug/l	10
Isophorone	10	U	ug/l	10	10	U	ug/l	10
2-Nitrophenol	10	U	ug/l	10	10	U	ug/l	10
2,4-Dimethylphenol	10	U	ug/l	10	10	U	ug/l	10
bis(2-Chloroethoxy) methane	10	U	ug/l	10	10	U	ug/l	10
2,4-Dichlorophenol	10	U	ug/l	10	10	U	ug/l	10
1,2,4-Trichlorobenzene	10	U	ug/l	10	10	U	ug/l	10
Naphthalene	10	U	ug/l	10	10	U	ug/l	10
4-Chloroaniline	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobutadiene	10	U	ug/l	10	10	U	ug/l	10
4-Chloro-3-methylphenol	10	U	ug/l	10	10	U	ug/l	10
2-Methylnaphthalene	10	U	ug/l	10	10	U	ug/l	10
Hexachlorocyclopentadiene	10	U	ug/l	10	10	U	ug/l	10
2,4,6-Trichlorophenol	10	U	ug/l	10	10	U	ug/l	10
2,4,5-Trichlorophenol	25	U	ug/l	25	25	U	ug/l	25
2-Chloronaphthalene	10	U	ug/l	10	10	U	ug/l	10
2-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25
Dimethylphthalate	10	U	ug/l	10	10	U	ug/l	10
Acenaphthylene	10	U	ug/l	10	10	U	ug/l	10
2,6-Dinitrotoluene	10	U	ug/l	10	10	U	ug/l	10
3-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25
Acenaphthene	10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrophenol	25	U	ug/l	25	25	U	ug/l	25
4-Nitrophenol	25	U	ug/l	25	25	U	ug/l	25
Dibenzofuran	10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrotoluene	10	U	ug/l	10	10	U	ug/l	10
Diethylphthalate	10	U	ug/l	10	10	U	ug/l	10
4-Chlorophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10
Fluorene	10	U	ug/l	10	10	U	ug/l	10

02/23/95 WHITING FIELD - PERIMETER SITES 15:17:40
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90181003			90186001				
Site	WHITING			WHITING				
Locator	WHF18-2			WHF18-3				
Collect Date:	21-OCT-93			25-OCT-93				
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25
4,6-Dinitro-2-methylphenol	25	U	ug/l	25	25	U	ug/l	25
N-Nitrosodiphenylamine (1)	10	U	ug/l	10	10	U	ug/l	10
4-Bromophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobenzene	10	U	ug/l	10	10	U	ug/l	10
Pentachlorophenol	25	U	ug/l	25	25	U	ug/l	25
Phenanthrene	10	U	ug/l	10	10	U	ug/l	10
Anthracene	10	U	ug/l	10	10	U	ug/l	10
Carbazole	10	U	ug/l	10	10	U	ug/l	10
Di-n-butylphthalate	10	U	ug/l	10	10	U	ug/l	10
Fluoranthene	10	U	ug/l	10	10	U	ug/l	10
Pyrene	10	U	ug/l	10	10	U	ug/l	10
Butylbenzylphthalate	10	U	ug/l	10	10	U	ug/l	10
3,3-Dichlorobenzidine	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) anthracene	10	U	ug/l	10	10	U	ug/l	10
Chrysene	10	U	ug/l	10	10	U	ug/l	10
bis(2-Ethylhexyl) phthalate	10	U	ug/l	10	10	U	ug/l	10
Di-n-octylphthalate	10	U	ug/l	10	10	U	ug/l	10
Benzo (b) fluoranthene	10	U	ug/l	10	10	U	ug/l	10
Benzo (k) fluoranthene	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) pyrene	10	U	ug/l	10	10	U	ug/l	10
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	10	U	ug/l	10
Dibenz (a,h) anthracene	10	U	ug/l	10	10	U	ug/l	10
Benzo (g,h,i) perylene	10	U	ug/l	10	10	U	ug/l	10

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - PERIMETER SITES 16:31:38
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90175001	90174004	90174004RE	90178001				
Site	WHITING	WHITING	WHITING	WHITING				
Locator	WHFBKG-1	WHFBKG3	WHFBKG3RE	WHF1-2				
Collect Date:	15-OCT-93	14-OCT-93	14-OCT-93	19-OCT-93				
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

TENTATIVELY IDENTIFIED CMPNDS. ug/l

(8.85) 2-Pyrrolidinone, 1-Meth	32 J	ug/l						
(9.27) 2-Pyrrolidinone, 1-Meth	1200 J	ug/l						
(10.10) Benzenemethanol, .Alpha	19 J	ug/l						
(9.62) Ethanone, 1-Phenyl-	11 J	ug/l						
(4.18) 2-Pentanone, 4-Hydroxy-			52 UJ	ug/l				
(8.49) 2-Pyrrolidinone, 1-Meth			140 J	ug/l				
(13.94) 1(3h)-Isobenzofuranone			4 J	ug/l				
(8.89) Ethanone, 1-Phenyl-			8 J	ug/l				
(8.25) 2-Pyrrolidinone, 1-Meth						2 J	ug/l	

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Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - PERIMETER SITES 16:31:38
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90175002	90178002	90178004	90188001
Site	WHITING	WHITING	WHITING	WHITING
Locator	WHF1-3	WHF2-1	WHF2-1A	WHF9-1
Collect Date:	15-OCT-93	19-OCT-93	19-OCT-93	26-OCT-93
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS

TENTATIVELY IDENTIFIED CMPNDS. ug/l
 (6.18) 2-Propanol

28 J ug/l

(24.44) Decanal

(4.20) 2-Pentanone-4-Hydroxy-4
 (8.25) 2-Pyrrolidinone, 1-Meth

8 J ug/l
 36 UJ ug/l
 33 J ug/l

(8.28) 2-Pyrrolidinone, 1-Meth

52 J ug/l

(8.27) 2-Pyrrolidinone, 1-Meth

21 J ug/l

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

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02/23/95 WHITING FIELD - PERIMETER SITES 16:31:38
GOUNDWATER SAMPLES - ANALYTICAL REPORT

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - PERIMETER SITES 16:31:38
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90194001	90194001RE	90191002	90191001
Site	WHITING	WHITING	WHITING	WHITING
Locator	WHF11-1	WHF11-1RE	WHF11-1B	WHF11-2
Collect Date:	29-OCT-93	29-OCT-93	28-OCT-93	28-OCT-93
	VALUE	QUAL UNITS	DL	VALUE
TENTATIVELY IDENTIFIED CMPNDS. ug/l				
(10.67) Hexanoic Acid, 2-Ethyl	270 J	ug/l		
(11.32) 1-Octanol, Dimethyl-	3 J	ug/l		
(21.37) Hexadecanoic Acid	6 J	ug/l		
(23.34) 2-Propenoic Acid, 2-Me	5 J	ug/l		
(26.91) 1,2-Benzenedicarboxyli	12 J	ug/l		
(8.62) 2-Pyrrolidinone, 1-Meth	170 J	ug/l		
(10.60) Hexanoic Acid, 2-Ethyl		28 J	ug/l	
(23.34) 2-Propenoic Acid, 2-Me		4 J	ug/l	
(5.28) Phenol, Fluoro- Isomer		5 J	ug/l	
(4.23) 2-Pantanone, 4-Hydroxy-			3 UJ	ug/l
(11.12) Butane, 2,2,3,3-Tetram			22 J	ug/l
(9.29) Pentane, 2,4-Dimethyl-			7 J	ug/l
(13.30) Pentane, 2,3,3-Trimeth			33 J	ug/l
(10.45) Hexanoic Acid, 2-Ethyl				16 J ug/l
(21.37) Hexadecanoic Acid				3 J ug/l
(21.54) Bromacil				2 J ug/l
(8.50) 2-Pyrrolidinone, 1-Meth				140 J ug/l

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

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02/23/95 WHITING FIELD - PERIMETER SITES 16:31:38
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90191001RE	90190001	90190002	90196002					
Site	WHITING	WHITING	WHITING	WHITING					
Locator	WHF11-2RE	WHF11-3	WHF11-3A	WHF12-1					
Collect Date:	28-OCT-93	28-OCT-93	28-OCT-93	01-NOV-93					
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

TENTATIVELY IDENTIFIED CMPNDS. ug/l

(8.47) 2-Pyrrolidinone, 1-Meth 190 J ug/l

(10.39) Hexanoic Acid, 2-Ethyl 17 J ug/l

(21.35) Hexadecanoic Acid 2 J ug/l

(8.23) 2-Pyrrolidinone, 1-Meth 15 J ug/l

(24.42) Decanal 6 J ug/l

(8.25) 2-Pyrrolidinone, 1-Meth

6 J ug/l

(8.25) 2-Pyrrolidinone, 1-Meth

22 J ug/l

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

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02/23/95 WHITING FIELD - PERIMETER SITES 16:31:38
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90198002	90198001	90198003	90199002
Site	WHITING	WHITING	WHITING	WHITING
Locator	WHF13-1	WHF13-1B	WHF13-2	WHF14-1
Collect Date:	02-NOV-93	02-NOV-93	02-NOV-93	03-NOV-93
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS

TENTATIVELY IDENTIFIED CMPNDS. ug/l

(10.92) Benzoic Acid, Ammonium

18 J ug/l

10 J ug/l

45 J ug/l

(14.42) Hexadecanoic Acid

20 J ug/l

8 J ug/l

(11.12) Hexane, Dimethyl- Isom

19 J ug/l

4 J ug/l

(13.09) Hexane, Dimethyl- Isom

33 J ug/l

6 J ug/l

(13.29) Pentane, Trimethyl- Is

12 J ug/l

(8.32) 2-Pyrrolidinone, 1-Meth

7 J ug/l

(21.39) Hexadecanoic Acid

13 J ug/l

(11.00) Octanoic Acid

3 J ug/l

(11.22) Ethanol, Butoxyethoxy-

11 J ug/l

(11.79) Ethanol, Phenoxy- Isom

61 J ug/l

(13.99) Propanoic Acid, 2-Meth

7 J ug/l

(14.29) Propanoic Acid, 2-Meth

71 J ug/l

(21.39) Hexadecanoic Acid

(7.40) 2-Propanol, 1-(2-Methox

(7.73) 2-Propanol, 1-(2-Methox

(10.14) Hexanoic Acid, 2-Ethyl

(7.52) Ethanol, 2-(2-Ethoxyeth

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

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02/23/95 WHITING FIELD - PERIMETER SITES 16:31:38
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90198004	90210001	90203001	90199005
Site Locator	WHITING WHF14-2	WHITING WHF15-2D	WHITING WHF15-3B	WHITING WHF15-3C
Collect Date:	02-NOV-93	09-NOV-93	14-NOV-93	03-NOV-93
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS

TENTATIVELY IDENTIFIED CMPNDS. ug/l

(21.37) Hexadecanoic Acid

(8.23) 2-Pyrrolidinone, 1-Meth

(8.35) 2-Pyrrolidinone, 1-Meth

(5.77) Benzene, Ethylmethyl- I

(18.22) Benzenesulfonamide, 4-

9 J ug/l

17 J ug/l

72 J ug/l

7 J ug/l

5 J ug/l

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - PERIMETER SITES 16:31:38
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90199004	90199003	90271001	90214004
Site	WHITING	WHITING	WHITING	WHITING
Locator	WHF15-3D	WHF15-4	WHF15-5	WHF15-6B
Collect Date:	03-NOV-93	03-NOV-93	03-DEC-93	24-NOV-93
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS

TENTATIVELY IDENTIFIED CMPNDS. ug/l

(8.28) 2-Pyrrolidinone, 1-Meth

36 J ug/l

(8.28) 2-Pyrrolidinone, 1-Meth

24 J ug/l

(21.39) Hexadecanoic Acid

8 J ug/l

(22.14) Hexadecanoic Acid

11 J ug/l

(8.85) 2-Pyrrolidinone, 1-Meth

39 J ug/l

(4.23) 2-Pentanone, 4-Hydroxy-

4 UJ ug/l

(9.95) Benzene, Tetramethyl- I

2 J ug/l

(21.37) Hexadecanoic Acid

2 J ug/l

(2.50) Methane, Chlorodifluoro

11 J ug/l

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - PERIMETER SITES 16:31:38
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90214003	Site	WHITING	Locator	WHF15-60	Collect Date:	24-NOV-93	VALUE	QUAL UNITS	DL									
TENTATIVELY IDENTIFIED CMPNDs. ug/l																			
(8.23) 2-Pyrrolidinone, 1-Meth	23 J	ug/l																	
(4.18) 2-Pentanone, 4-Hydroxy-								7 UJ	ug/l										
(10.87) Pentane, 2,4-Dimethyl-								6 J	ug/l										
(12.85) Butane, 2-Azido-2,3,3-								9 J	ug/l										
(15.22) Pentane, 2,3,3-Trimeth								7 J	ug/l										
(8.67) Butane, 2,3-Dimethyl-								14 J	ug/l										
(3.50) Propane, 2-Methyl-								6 J	ug/l										
(12.74) Cyclopentane, Trimeth-											2 J	ug/l							
(4.28) 2-Pentanone, 4-Hydroxy-											3 UJ	ug/l							
(6.02) Benzene, Ethylmethyl- I											3 J	ug/l							
(7.65) Benzene, Trimethyl- Iso											3 J	ug/l							
(8.77) 2-Pyrrolidinone, 1-Meth											4 J	ug/l							
(4.23) 2-Pentanone,4-Hydroxy-4																	8 UJ	ug/l	

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - PERIMETER SITES 16:31:38
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90221001	Site	WHITING	Locator	WHF16-3CD	Collect Date:	12-NOV-93	90220001	WHITING	WHF16-3D	11-NOV-93	90220002	WHITING	WHF16-3DA	11-NOV-93	90226003	WHITING	WHF16-4CD	16-NOV-93
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	
TENTATIVELY IDENTIFIED CMPNDs. ug/l																			
(10.85) Pentane, 2,4-Dimethyl-	58 J	ug/l																	
(11.30) Cyclopentane, Methyl-	68 J	ug/l																	
(12.62) Cyclohexane(Dot)	60 J	ug/l																	
(3.75) Propane, 2-Methyl-	72 J	ug/l																	
(6.53) Pentane (Acn)(Dot)	76 J	ug/l																	
(8.72) Butane, 2,3-Dimethyl-	210 J	ug/l																	
(9.22) Cyclobutane, Methyl-	84 J	ug/l																	
(5.07) Cyclopentanol, Methyl-1	17 J	ug/l																	
(5.90) Disulfide, Diethyl	4 J	ug/l																	
(5.98) Benzene, Methylethyl-Is	5 J	ug/l																	
(7.60) Benzene, Trimethyl-Isom	10 J	ug/l																	
(8.72) 2-Pyrrolidinone, 1-Meth	9 J	ug/l																	
(8.12) 2-Pyrrolidinone, 1-Meth				39 J	ug/l														
(8.12) 2-Pyrrolidinone, 1-Meth				39 J	ug/l														
(8.12) 2-Pyrrolidinone, 1-Meth							30 J	ug/l											
(8.12) 2-Pyrrolidinone, 1-Meth							30 J	ug/l											
(8.77) 2-Pyrrolidinone, 1-Meth																27 J	ug/l		

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - PERIMETER SITES 16:31:38
 GOUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90225002	Site	WHITING	Locator	WHF16-4D	Collect Date:	15-NOV-93	90178005	WHITING	WHF17-1	19-OCT-93	90180002	WHITING	WHF17-1B	20-OCT-93	90179001	WHITING	WHF17-2B	20-OCT-93
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL			
TENTATIVELY IDENTIFIED CMPNDS. ug/l																			
(4.23) 2-Pentanone, 4-Hydroxy-	26	UJ	ug/l																
(8.69) 2-Pyrrolidinone, 1-Meth	6	J	ug/l																
(10.730) Cyclotrisiloxane, Hex	11	J	ug/l																
(20.040) Benzeneethanamine, N-	18	J	ug/l																
(15.944) Cyclotetrasiloxane, O	100	J	ug/l																
(8.27) 2-Pyrrolidinone, 1-Meth					30	J	ug/l												
(4.23) 2-Pentanone, 4-Hydroxy-						19	UJ	ug/l											
(8.25) 2-Pyrrolidinone, 1-Meth						16	J	ug/l											
(21.37) Hexadecanoic Acid									2	J	ug/l								
(4.18) 2-Pentanone, 4-Hydroxy-									17	UJ	ug/l								
(8.23) 2-Pyrrolidinone, 1-Meth									19	J	ug/l								

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - PERIMETER SITES 16:31:38
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90179002	90181001	90181002	90181003				
Site	WHITING	WHITING	WHITING	WHITING				
Locator	WHF17-2BA	WHF17-3	WHF18-1	WHF18-2				
Collect Date:	20-OCT-93	21-OCT-93	21-OCT-93	21-OCT-93				
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

TENTATIVELY IDENTIFIED CMPNDs. ug/l

(24.45) Decanal 8 J ug/l
 (4.25) 2-Pentanone, 4-Hydroxy- 19 UJ ug/l
 (8.39) 2-Pyrrolidinone, 1-Meth 74 J ug/l
 (21.39) Hexadecanoic Acid 7 J ug/l

(4.20) 2-Pentanone, 4-Hydroxy- 97 UJ ug/l

(24.44) Decanal 6 J ug/l
 (4.22) 2-Pentanone, 4-Hydroxy- 100 UJ ug/l
 (8.27) 2-Pyrrolidinone, 1-Meth 30 J ug/l
 (4.18) 2-Pentanone, 4-Hydroxy- 89 UJ ug/l

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - PERIMETER SITES 16:31:38
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number: 90186001
Site WHITING
Locator WHF18-3
Collect Date: 25-OCT-93

VALUE QUAL UNITS DL

TENTATIVELY IDENTIFIED CMPNDS. ug/l
(24.42) Decanal
(8.25) 2-Pyrrolidinone, 1-Meth

7 J ug/l
9 J ug/l

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

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02/23/95 WHITING FIELD - PERIMETER SITES 15:57:07
 GOUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90175001			90174005			90174004			90177001		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHFBKG-1			WHFBKG2			WHFBKG3			WHF1-1		
Collect Date:	15-OCT-93			14-OCT-93			14-OCT-93			18-OCT-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW	ug/l											
alpha-BHC	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
beta-BHC	.05	UJ	ug/l	.05	.02	J	ug/l	.05	.05	UJ	ug/l	.05
delta-BHC	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
gamma-BHC (Lindane)	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Aldrin	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor epoxide	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Endosulfan I	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Dieldrin	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDE	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endrin	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan II	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDD	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan sulfate	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDT	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Methoxychlor	.5	UJ	ug/l	.5	.5	UJ	ug/l	.5	.5	UJ	ug/l	.5
Endrin ketone	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endrin aldehyde	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
alpha-Chlordane	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
gamma-Chlordane	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Toxaphene	5	UJ	ug/l	5	5	UJ	ug/l	5	5	UJ	ug/l	5
Aroclor-1016	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1221	2	UJ	ug/l	2	2	UJ	ug/l	2	2	UJ	ug/l	2
Aroclor-1232	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1242	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1248	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1254	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1260	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

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02/23/95 WHITING FIELD - PERIMETER SITES 15:57:07
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90177002			90178001			90175002			90178002		
Site Locator	WHITING	WHITING	WHITING	WHITING	WHITING	WHITING	WHITING	WHITING	WHITING	WHITING	WHITING	WHITING
Collect Date:	18-OCT-93	19-OCT-93	19-OCT-93	15-OCT-93			19-OCT-93			19-OCT-93		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
CLP PESTICIDES/PCBS 90-SOW ug/l												
alpha-BHC	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
beta-BHC	.019	J	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
delta-BHC	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
gamma-BHC (Lindane)	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Aldrin	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor epoxide	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Endosulfan I	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Dieldrin	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDE	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endrin	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan II	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDD	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan sulfate	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDT	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Methoxychlor	.5	UJ	ug/l	.5	.5	UJ	ug/l	.5	.5	UJ	ug/l	.5
Endrin ketone	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endrin aldehyde	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
alpha-Chlordane	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
gamma-Chlordane	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Toxaphene	5	UJ	ug/l	5	5	UJ	ug/l	5	5	UJ	ug/l	5
Aroclor-1016	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1221	2	UJ	ug/l	2	2	UJ	ug/l	2	2	UJ	ug/l	2
Aroclor-1232	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1242	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1248	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1254	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1260	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

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02/23/95 WHITING FIELD - PERIMETER SITES 15:57:07
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90178004			90188001			90188002			90189001		
Site Locator	WHITING	WHF2-1A	WHITING	WHF9-1	WHITING	WHF9-2	WHITING	WHF9-3	WHITING	WHF9-3		
Collect Date:	19-OCT-93		26-OCT-93		26-OCT-93		27-OCT-93		27-OCT-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW ug/l												
alpha-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
beta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
delta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
gamma-BHC (Lindane)	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Heptachlor	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Aldrin	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Heptachlor epoxide	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Endosulfan I	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Dieldrin	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDE	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endrin	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endosulfan II	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDD	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endosulfan sulfate	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDT	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Methoxychlor	.5	UJ	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5
Endrin ketone	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endrin aldehyde	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
alpha-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
gamma-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Toxaphene	5	UJ	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Aroclor-1016	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1221	2	UJ	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Aroclor-1232	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1242	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1248	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1254	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1260	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

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02/23/95 WHITING FIELD - PERIMETER SITES 15:57:07
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90189005			90189004			90194001			90191002		
Site Locator	WHITING			WHITING			WHITING			WHITING		
Collect Date:	WHD10-1			WHD10-2			WHD11-1			WHD11-1B		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW ug/l												
alpha-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
beta-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
delta-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
gamma-BHC (Lindane)	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Aldrin	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor epoxide	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Endosulfan I	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Dieldrin	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDE	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Endrin	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan II	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDD	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan sulfate	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDT	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Methoxychlor	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	UJ	ug/l	.5
Endrin ketone	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Endrin aldehyde	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
alpha-Chlordane	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
gamma-Chlordane	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Toxaphene	5	U	ug/l	5	5	U	ug/l	5	5	UJ	ug/l	5
Aroclor-1016	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1221	2	U	ug/l	2	2	U	ug/l	2	2	UJ	ug/l	2
Aroclor-1232	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1242	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1248	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1254	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1260	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

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02/23/95 WHITING FIELD - PERIMETER SITES 15:57:07
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90191002RE				90191001				90190001				90190002			
Site	WHITING				WHITING				WHITING				WHITING			
Locator	WHD11-1BRE				WHD11-2				WHD11-3				WHD11-3A			
Collect Date:	28-OCT-93				28-OCT-93				28-OCT-93				28-OCT-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW	ug/l															
alpha-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
beta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
delta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
gamma-BHC (Lindane)	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Aldrin	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor epoxide	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Endosulfan I	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Dieldrin	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDE	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endrin	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan II	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDD	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan sulfate	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDT	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Methoxychlor	.5	UJ	ug/l	.5	.5	U	ug/l	.5	.5	UJ	ug/l	.5	.5	UJ	ug/l	.5
Endrin ketone	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endrin aldehyde	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
alpha-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
gamma-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Toxaphene	5	UJ	ug/l	5	5	U	ug/l	5	5	UJ	ug/l	5	5	UJ	ug/l	5
Aroclor-1016	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1221	2	UJ	ug/l	2	2	U	ug/l	2	2	UJ	ug/l	2	2	UJ	ug/l	2
Aroclor-1232	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1242	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1248	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1254	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1260	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - PERIMETER SITES 15:57:07
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90190002RE				90196002				90198002				90198001			
Site Locator	WHITING		WHITING		WHITING		WHITING		WHITING		WHITING		WHITING		WHITING	
Collect Date:	WHF11-3ARE		WHF12-1		WHF13-1		WHF13-1		WHF13-1		WHF13-1B		WHF13-1B		WHF13-1B	
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	
CLP PESTICIDES/PCBS 90-SOW ug/l																
alpha-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
beta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
delta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
gamma-BHC (Lindane)	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Aldrin	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor epoxide	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Endosulfan I	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Dieldrin	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDE	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endrin	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan II	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDD	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan sulfate	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDT	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Methoxychlor	.5	UJ	ug/l	.5	.5	U	ug/l	.5	.5	UJ	ug/l	.5	.5	UJ	ug/l	.5
Endrin ketone	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endrin aldehyde	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
alpha-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
gamma-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Toxaphene	5	UJ	ug/l	5	5	U	ug/l	5	5	UJ	ug/l	5	5	UJ	ug/l	5
Aroclor-1016	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1221	2	UJ	ug/l	2	2	U	ug/l	2	2	UJ	ug/l	2	2	UJ	ug/l	2
Aroclor-1232	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1242	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1248	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1254	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1260	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - PERIMETER SITES 15:57:07
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90198003			90199002			90198004			90271002		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF13-2			WHF14-1			WHF14-2			WHF15-1		
Collect Date:	02-NOV-93			03-NOV-93			02-NOV-93			03-DEC-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW	ug/l											
alpha-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
beta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
delta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
gamma-BHC (Lindane)	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Aldrin	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor epoxide	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Endosulfan I	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Dieldrin	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDE	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Endrin	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan II	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDD	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan sulfate	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDT	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Methoxychlor	.5	UJ	ug/l	.5	.5	U	ug/l	.5	.5	UJ	ug/l	.5
Endrin ketone	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Endrin aldehyde	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
alpha-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
gamma-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Toxaphene	5	UJ	ug/l	5	5	U	ug/l	5	5	UJ	ug/l	5
Aroclor-1016	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1221	2	UJ	ug/l	2	2	U	ug/l	2	2	UJ	ug/l	2
Aroclor-1232	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1242	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1248	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1254	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1260	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

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02/23/95 WHITING FIELD - PERIMETER SITES 15:57:07
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90210003			90210004			90210002			90210001		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF15-2B			WHF15-2BA			WHF15-2C			WHF15-2D		
Collect Date:	09-NOV-93			09-NOV-93			09-NOV-93			09-NOV-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW	ug/l											
alpha-BHC	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
beta-BHC	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
delta-BHC	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
gamma-BHC (Lindane)	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Heptachlor	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Aldrin	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Heptachlor epoxide	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Endosulfan I	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Dieldrin	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
4,4-DDE	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
Endrin	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
Endosulfan II	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
4,4-DDD	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
Endosulfan sulfate	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
4,4-DDT	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
Methoxychlor	.5	U	ug/l	.5	.5	UJ	ug/l	.5	.5	U	ug/l	.5
Endrin ketone	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
Endrin aldehyde	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
alpha-Chlordane	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
gamma-Chlordane	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Toxaphene	5	U	ug/l	5	5	UJ	ug/l	5	5	U	ug/l	5
Aroclor-1016	1	U	ug/l	1	1	UJ	ug/l	1	1	U	ug/l	1
Aroclor-1221	2	U	ug/l	2	2	UJ	ug/l	2	2	U	ug/l	2
Aroclor-1232	1	U	ug/l	1	1	UJ	ug/l	1	1	U	ug/l	1
Aroclor-1242	1	U	ug/l	1	1	UJ	ug/l	1	1	U	ug/l	1
Aroclor-1248	1	U	ug/l	1	1	UJ	ug/l	1	1	U	ug/l	1
Aroclor-1254	1	U	ug/l	1	1	UJ	ug/l	1	1	U	ug/l	1
Aroclor-1260	1	U	ug/l	1	1	UJ	ug/l	1	1	U	ug/l	1

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

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02/23/95 WHITING FIELD - PERIMETER SITES 15:57:07
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90203001	Site	WHITING	Locator	WHF15-3B	Collect Date:	14-NOV-93	90199005	WHITING	WHF15-3C	03-NOV-93	90199005RE	WHITING	WHF15-3CRE	03-NOV-93	90199004	WHITING	WHF15-3D	03-NOV-93
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	
CLP PESTICIDES/PCBS 90-SOW	ug/l																		
alpha-BHC	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l
beta-BHC	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l
delta-BHC	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l
gamma-BHC (lindane)	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l
Heptachlor	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l
Aldrin	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l
Heptachlor epoxide	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l
Endosulfan I	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l
Dieldrin	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l
4,4-DDE	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l
Endrin	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l
Endosulfan II	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l
4,4-DDD	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l
Endosulfan sulfate	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l
4,4-DDT	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l
Methoxychlor	.5	U	ug/l	.5	.5	UJ	ug/l	.5	.5	UJ	ug/l	.5	.5	UJ	ug/l	.5	.5	UJ	ug/l
Endrin ketone	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l
Endrin aldehyde	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l
alpha-Chlordane	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l
gamma-Chlordane	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l
Toxaphene	5	U	ug/l	5	5	UJ	ug/l	5	5	UJ	ug/l	5	5	UJ	ug/l	5	5	UJ	ug/l
Aroclor-1016	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l
Aroclor-1221	2	U	ug/l	2	2	UJ	ug/l	2	2	UJ	ug/l	2	2	UJ	ug/l	2	2	UJ	ug/l
Aroclor-1232	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l
Aroclor-1242	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l
Aroclor-1248	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l
Aroclor-1254	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l
Aroclor-1260	1	U	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - PERIMETER SITES 15:57:07
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90199004RE			90199003			90271001			90214004		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHD15-3DRE			WHD15-4			WHD15-5			WHD15-6B		
Collect Date:	03-NOV-93			03-NOV-93			03-DEC-93			24-NOV-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW ug/l												
alpha-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
beta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
delta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
gamma-BHC (Lindane)	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Heptachlor	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Aldrin	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Heptachlor epoxide	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Endosulfan I	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Dieldrin	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDE	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endrin	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endosulfan II	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDD	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endosulfan sulfate	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDT	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Methoxychlor	.5	UJ	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5
Endrin ketone	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endrin aldehyde	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
alpha-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
gamma-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Toxaphene	5	UJ	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Aroclor-1016	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1221	2	UJ	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Aroclor-1232	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1242	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1248	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1254	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1260	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - PERIMETER SITES 15:57:07
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90214003			90226004			90214002			90272002		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHD15-6D			WHD16-1			WHD16-2			WHD16-2B		
Collect Date:	24-NOV-93			16-NOV-93			24-NOV-93			06-DEC-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW	ug/l											
alpha-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
beta-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
delta-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
gamma-BHC (Lindane)	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Heptachlor	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Aldrin	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Heptachlor epoxide	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Endosulfan I	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Dieldrin	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDE	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endrin	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endosulfan II	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDD	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endosulfan sulfate	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDT	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Methoxychlor	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5
Endrin ketone	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endrin aldehyde	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
alpha-Chlordane	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
gamma-Chlordane	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Toxaphene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Aroclor-1016	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1221	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Aroclor-1232	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1242	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1248	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1254	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1260	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - PERIMETER SITES 15:57:07
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90272001			90225001			90221002			90221002RE		
Site Locator	WHITING			WHITING			WHITING			WHITING		
Collect Date:	WHF16-2C			WHF16-3B			WHF16-3C			WHF16-3CRE		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW ug/l												
alpha-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
beta-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
delta-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
gamma-BHC (Lindane)	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Aldrin	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor epoxide	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Endosulfan I	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Dieldrin	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDE	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Endrin	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan II	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDD	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan sulfate	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDT	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Methoxychlor	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	UJ	ug/l	.5
Endrin ketone	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Endrin aldehyde	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
alpha-Chlordane	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
gamma-Chlordane	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Toxaphene	5	U	ug/l	5	5	U	ug/l	5	5	UJ	ug/l	5
Aroclor-1016	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1221	2	U	ug/l	2	2	U	ug/l	2	2	UJ	ug/l	2
Aroclor-1232	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1242	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1248	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1254	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1260	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE D = DOUBLE INTERMEDIATE SAMPLE E = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - PERIMETER SITES 15:57:07
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90221001	90220001	90220002	90226001					
Site	WHITING	WHITING	WHITING	WHITING					
Locator	WHF16-3CD	WHF16-3D	WHF16-3DA	WHF16-4B					
Collect Date:	12-NOV-93	11-NOV-93	11-NOV-93	16-NOV-93					
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS					
CLP PESTICIDES/PCBS 90-SOW ug/l									
alpha-BHC	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05
beta-BHC	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05
delta-BHC	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05
gamma-BHC (Lindane)	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05
Heptachlor	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05
Aldrin	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05
Heptachlor epoxide	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05
Endosulfan I	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05
Dieldrin	.1 UJ	ug/l	.1	.1 UJ	ug/l	.1	.1 UJ	ug/l	.1
4,4-DDE	.1 UJ	ug/l	.1	.1 UJ	ug/l	.1	.1 UJ	ug/l	.1
Endrin	.1 UJ	ug/l	.1	.1 UJ	ug/l	.1	.1 UJ	ug/l	.1
Endosulfan II	.1 UJ	ug/l	.1	.1 UJ	ug/l	.1	.1 UJ	ug/l	.1
4,4-DDD	.1 UJ	ug/l	.1	.1 UJ	ug/l	.1	.1 UJ	ug/l	.1
Endosulfan sulfate	.1 UJ	ug/l	.1	.1 UJ	ug/l	.1	.1 UJ	ug/l	.1
4,4-DDT	.1 UJ	ug/l	.1	.1 UJ	ug/l	.1	.1 UJ	ug/l	.1
Methoxychlor	.5 UJ	ug/l	.5	.5 UJ	ug/l	.5	.5 UJ	ug/l	.5
Endrin ketone	.1 UJ	ug/l	.1	.1 UJ	ug/l	.1	.1 UJ	ug/l	.1
Endrin aldehyde	.1 UJ	ug/l	.1	.1 UJ	ug/l	.1	.1 UJ	ug/l	.1
alpha-Chlordane	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05
gamma-Chlordane	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05
Toxaphene	5 UJ	ug/l	5	5 UJ	ug/l	5	5 UJ	ug/l	5
Aroclor-1016	1 UJ	ug/l	1	1 UJ	ug/l	1	1 UJ	ug/l	1
Aroclor-1221	2 UJ	ug/l	2	2 UJ	ug/l	2	2 UJ	ug/l	2
Aroclor-1232	1 UJ	ug/l	1	1 UJ	ug/l	1	1 UJ	ug/l	1
Aroclor-1242	1 UJ	ug/l	1	1 UJ	ug/l	1	1 UJ	ug/l	1
Aroclor-1248	1 UJ	ug/l	1	1 UJ	ug/l	1	1 UJ	ug/l	1
Aroclor-1254	1 UJ	ug/l	1	1 UJ	ug/l	1	1 UJ	ug/l	1
Aroclor-1260	1 UJ	ug/l	1	1 UJ	ug/l	1	1 UJ	ug/l	1

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02/23/95 WHITING FIELD - PERIMETER SITES 15:57:07
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90226002			90226003			90225002			90236003		
Site Locator	WHITING			WHITING			WHITING			WHITING		
Collect Date:	WHF16-4BA			WHF16-4CD			WHF16-4D			WHF16-5		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW ug/l												
alpha-BHC	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
beta-BHC	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
delta-BHC	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
gamma-BHC (Lindane)	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Aldrin	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor epoxide	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Endosulfan I	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Dieldrin	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDE	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endrin	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan II	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDD	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan sulfate	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDT	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Methoxychlor	.5	UJ	ug/l	.5	.5	UJ	ug/l	.5	.5	UJ	ug/l	.5
Endrin ketone	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endrin aldehyde	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
alpha-Chlordane	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
gamma-Chlordane	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Toxaphene	5	UJ	ug/l	5	5	UJ	ug/l	5	5	UJ	ug/l	5
Aroclor-1016	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1221	2	UJ	ug/l	2	2	UJ	ug/l	2	2	UJ	ug/l	2
Aroclor-1232	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1242	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1248	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1254	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1260	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

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02/23/95 WHITING FIELD - PERIMETER SITES 15:57:07
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90178005	90180002			90179001			90179002				
Site	WHITING	WHITING			WHITING			WHITING				
Locator	WHF17-1	WHF17-1B			WHF17-2B			WHF17-2B				
Collect Date:	19-OCT-93	20-OCT-93			20-OCT-93			20-OCT-93				
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW ug/l												
alpha-BHC	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
beta-BHC	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
delta-BHC	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
gamma-BHC (Lindane)	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Heptachlor	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Aldrin	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Heptachlor epoxide	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Endosulfan I	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Dieldrin	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
4,4-DDE	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
Endrin	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
Endosulfan II	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
4,4-DDD	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
Endosulfan sulfate	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
4,4-DDT	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
Methoxychlor	.5	U	ug/l	.5	.5	UJ	ug/l	.5	.5	U	ug/l	.5
Endrin ketone	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
Endrin aldehyde	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
alpha-Chlordane	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
gamma-Chlordane	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Toxaphene	5	U	ug/l	5	5	UJ	ug/l	5	5	U	ug/l	5
Aroclor-1016	1	U	ug/l	1	1	UJ	ug/l	1	1	U	ug/l	1
Aroclor-1221	2	U	ug/l	2	2	UJ	ug/l	2	2	U	ug/l	2
Aroclor-1232	1	U	ug/l	1	1	UJ	ug/l	1	1	U	ug/l	1
Aroclor-1242	1	U	ug/l	1	1	UJ	ug/l	1	1	U	ug/l	1
Aroclor-1248	1	U	ug/l	1	1	UJ	ug/l	1	1	U	ug/l	1
Aroclor-1254	1	U	ug/l	1	1	UJ	ug/l	1	1	U	ug/l	1
Aroclor-1260	1	U	ug/l	1	1	UJ	ug/l	1	1	U	ug/l	1

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - PERIMETER SITES 15:57:07
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90181001			90181002			90181003			90186001		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF17-3			WHF18-1			WHF18-2			WHF18-3		
Collect Date:	21-OCT-93			21-OCT-93			21-OCT-93			25-OCT-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW	ug/l											
alpha-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
beta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
delta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
gamma-BHC (Lindane)	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Heptachlor	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Aldrin	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Heptachlor epoxide	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Endosulfan I	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Dieldrin	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDE	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endrin	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endosulfan II	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDD	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endosulfan sulfate	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDT	.1	UJ	ug/l	.1	.072	J	ug/l	.1	.035	J	ug/l	.1
Methoxychlor	.5	UJ	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5
Endrin ketone	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endrin aldehyde	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
alpha-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
gamma-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Toxaphene	5	UJ	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Aroclor-1016	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1221	2	UJ	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Aroclor-1232	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1242	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1248	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1254	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1260	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1

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02/23/95 WHITING FIELD - PERIMETER SITES 16:16:09
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90175001			90174005			90174004			90177001		
Site	WHITING			WHITING			WHITING		WHITING			
Locator	WHFBKG-1			WHFBKG2			WHFBKG3		WHF1-1			
Collect Date:	15-OCT-93			14-OCT-93			14-OCT-93		18-OCT-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE	ug/l											
Aluminum	47100	ug/l	200		27400	ug/l	200		5540	ug/l	200	
Antimony	20.7 U	ug/l	60		20.7 U	ug/l	60		20.7 U	ug/l	60	
Arsenic	1.6 U	ug/l	10		2.1 U	ug/l	10		2 U	ug/l	10	
Barium	94.2 J	ug/l	200		60.4 J	ug/l	200		35.6 J	ug/l	200	
Beryllium	2.5 J	ug/l	5		2.1 J	ug/l	5		.75 J	ug/l	5	
Cadmium	3.2 U	ug/l	5		3.2 U	ug/l	5		3.2 U	ug/l	5	
Calcium	3440 J	ug/l	5000		2470 J	ug/l	5000		1150 J	ug/l	5000	
Chromium	148	ug/l	10		110	ug/l	10		1050	ug/l	10	
Cobalt	6.7 J	ug/l	50		9.4 J	ug/l	50		14.9 J	ug/l	50	
Copper	51.9	ug/l	25		28.8	ug/l	25		20.6 J	ug/l	25	
Iron	64800	ug/l	100		42200	ug/l	100		13100	ug/l	100	
Lead	19.7	ug/l	3		7.9	ug/l	3		3.2	ug/l	5	
Magnesium	1070 J	ug/l	5000		2520 J	ug/l	5000		794 J	ug/l	5000	
Manganese	141	ug/l	15		65.4	ug/l	15		76.6	ug/l	15	
Mercury	.16 J	ug/l	.2		.15 U	ug/l	.2		.15 U	ug/l	.2	
Nickel	20 J	ug/l	40		9 UJ	ug/l	40		726	ug/l	40	
Potassium	1830 J	ug/l	5000		23100	ug/l	5000		975 J	ug/l	5000	
Selenium	2 U	ug/l	5		2 J	ug/l	5		2 U	ug/l	5	
Silver	3.9 U	ug/l	10		2.7 U	ug/l	10		2.7 U	ug/l	10	
Sodium	1240 J	ug/l	5000		5260	ug/l	5000		2110 J	ug/l	5000	
Thallium	.88 U	ug/l	10		.88 U	ug/l	10		.88 U	ug/l	10	
Vanadium	277	ug/l	50		176	ug/l	50		49.7 J	ug/l	50	
Zinc	148	ug/l	20		40.8	ug/l	20		21.1	ug/l	20	
Cyanide	2.1 J	ug/l	10		1.7 U	ug/l	10		1.7 U	ug/l	10	

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02/23/95 WHITING FIELD - PERIMETER SITES 16:16:09
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90177002			90178001			90175002			90178002		
Site	WHITING			WHITING			WHITING		WHITING			
Locator	WHF1-1B			WHF1-2			WHF1-3		WHF2-1			
Collect Date:	18-OCT-93			19-OCT-93			15-OCT-93		19-OCT-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE ug/l												
Aluminum	30700	ug/l	200		61700	ug/l	200		10800	ug/l	200	
Antimony	20.7 U	ug/l	60		104 U	ug/l	60		20.7 U	ug/l	60	
Arsenic	1.6 U	ug/l	10		1.6 U	ug/l	10		1.6 U	ug/l	10	
Barium	72.7 J	ug/l	200		118 J	ug/l	200		28.9 J	ug/l	200	
Beryllium	2.2 J	ug/l	5		10 J	ug/l	5		.89 J	ug/l	5	
Cadmium	3.2 U	ug/l	5		16 U	ug/l	5		3.2 U	ug/l	5	
Calcium	3120 J	ug/l	5000		1090 J	ug/l	5000		1300 J	ug/l	5000	
Chromium	111	ug/l	10		1150	ug/l	10		24.7	ug/l	10	
Cobalt	5.5 J	ug/l	50		20.5 U	ug/l	50		4.1 U	ug/l	50	
Copper	68.4	ug/l	25		36.8 J	ug/l	25		12.2 J	ug/l	25	
Iron	104000	ug/l	100		318000	ug/l	100		158000	ug/l	100	
Lead	20.4	ug/l	3		36.2	ug/l	3		4.7	ug/l	3	
Magnesium	2280 J	ug/l	5000		1810 J	ug/l	5000		1260 J	ug/l	5000	
Manganese	243	ug/l	15		374	ug/l	15		57.4	ug/l	15	
Mercury	.23	ug/l	.2		.36	ug/l	.2		.15 U	ug/l	.2	
Nickel	13.8 J	ug/l	40		210	ug/l	40		9 UJ	ug/l	40	
Potassium	2420 J	ug/l	5000		3090 J	ug/l	5000		1220 J	ug/l	5000	
Selenium	2 U	ug/l	5		2 U	ug/l	2		2 U	ug/l	5	
Silver	5.8 J	ug/l	10		15.4 U	ug/l	10		2.7 U	ug/l	10	
Sodium	2510 J	ug/l	5000		2670 J	ug/l	5000		2340 J	ug/l	5000	
Thallium	.88 U	ug/l	10		.88 U	ug/l	10		.88 U	ug/l	10	
Vanadium	268	ug/l	50		1360	ug/l	50		77.5	ug/l	50	
Zinc	50	ug/l	20		109	ug/l	20		22.5	ug/l	20	
Cyanide	1.7 U	ug/l	10		2.5 J	ug/l	10		1.7 U	ug/l	10	

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02/23/95 WHITING FIELD - PERIMETER SITES 16:16:09
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90178004			90188001			90188002			90189001		
Site Locator	WHITING			WHITING			WHITING			WHITING		
Collect Date:	WHF2-1A			WHF9-1			WHF9-2			WHF9-3		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE ug/l												
Aluminum	11200	ug/l	200		231	ug/l	200		5840	ug/l	200	
Antimony	20.7 U	ug/l	60		20.7 U	ug/l	60		20.7 U	ug/l	60	
Arsenic	1.6 U	ug/l	10		1.6 UJ	ug/l	10		3.1 J	ug/l	10	
Barium	.57 J	ug/l	200		.35.5 J	ug/l	200		.35.1 J	ug/l	200	
Beryllium	1.3 J	ug/l	5		.2 UJ	ug/l	5		.2 UJ	ug/l	5	
Cadmium	3.2 U	ug/l	5		3.2 U	ug/l	5		3.2 U	ug/l	5	
Calcium	1290 J	ug/l	5000		20400	ug/l	5000		86000	ug/l	5000	
Chromium	144	ug/l	10		7.6 J	ug/l	10		67.8	ug/l	10	
Cobalt	4.1 U	ug/l	50		4.1 U	ug/l	50		4.1 U	ug/l	50	
Copper	34.1	ug/l	25		2.1 U	ug/l	25		5.2 J	ug/l	25	
Iron	66500	ug/l	100		246	ug/l	100		816	ug/l	100	
Lead	4.8	ug/l	5		1 U	ug/l	3		1 U	ug/l	3	
Magnesium	1380 J	ug/l	5000		199 J	ug/l	5000		197 J	ug/l	5000	
Manganese	42.4	ug/l	15		2.7 J	ug/l	15		8.6 J	ug/l	15	
Mercury	.15 U	ug/l	.2		.15 U	ug/l	.2		.15 U	ug/l	.2	
Nickel	9 UJ	ug/l	40		9.3 J	ug/l	40		9 U	ug/l	40	
Potassium	996 J	ug/l	5000		11100	ug/l	5000		17700	ug/l	5000	
Selenium	2 U	ug/l	5		2 U	ug/l	5		2 U	ug/l	5	
Silver	2.7 U	ug/l	10		2.7 U	ug/l	10		2.7 U	ug/l	10	
Sodium	1310 J	ug/l	5000		3920 J	ug/l	5000		3850 J	ug/l	5000	
Thallium	.88 U	ug/l	10		.88 U	ug/l	10		.88 U	ug/l	10	
Vanadium	153	ug/l	50		2.8 J	ug/l	50		24.6 J	ug/l	50	
Zinc	20.2	ug/l	20		13.7 J	ug/l	20		9.8 J	ug/l	20	
Cyanide	1.7 U	ug/l	10		1.7 U	ug/l	10		1.7 U	ug/l	10	

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02/23/95 WHITING FIELD - PERIMETER SITES 16:16:09
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90189005			90189004			90194001			90191002		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF10-1			WHF10-2			WHF11-1			WHF11-1B		
Collect Date:	27-OCT-93			27-OCT-93			29-OCT-93			28-OCT-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE ug/l												
Aluminum	29.5 J	ug/l	200		674	ug/l	200		69.8 J	ug/l	200	16400
Antimony	20.7 U	ug/l	60		20.7 U	ug/l	60		20.7 U	ug/l	60	20.7 U
Arsenic	1.6 UJ	ug/l	10		1.6 UJ	ug/l	10		1.6 U	ug/l	10	1.6 U
Barium	10.3 J	ug/l	200		8.6 J	ug/l	200		33.8 J	ug/l	200	97.1 J
Beryllium	.2 U	ug/l	5		.2 U	ug/l	5		.2 U	ug/l	5	.2 U
Cadmium	3.2 UJ	ug/l	5		3.2 UJ	ug/l	5		3.2 UJ	ug/l	5	3.2 UJ
Calcium	657 J	ug/l	5000		570 J	ug/l	5000		6830	ug/l	5000	49800
Chromium	3.3 U	ug/l	10		4.4 J	ug/l	10		3.3 U	ug/l	10	20.3
Cobalt	4.1 U	ug/l	50		4.1 U	ug/l	50		4.1 U	ug/l	50	4.1 U
Copper	2.1 U	ug/l	25		2.1 U	ug/l	25		5.4 J	ug/l	25	8.4 J
Iron	31.3 J	ug/l	100		722	ug/l	100		142	ug/l	100	23000
Lead	1.5 J	ug/l	3		1.2 J	ug/l	3		6	ug/l	3	5.4
Magnesium	254 J	ug/l	5000		337 J	ug/l	5000		304 J	ug/l	5000	5220
Manganese	1.6 J	ug/l	15		12.6 J	ug/l	15		2.5 J	ug/l	15	272
Mercury	.15 U	ug/l	.2		.15 U	ug/l	.2		.15 U	ug/l	.2	.15 U
Nickel	.9 U	ug/l	40		9 U	ug/l	40		9 U	ug/l	40	13.3 J
Potassium	2200 J	ug/l	5000		1110 J	ug/l	5000		747 J	ug/l	5000	1980 J
Selenium	2 U	ug/l	5		2 U	ug/l	5		2 U	ug/l	5	2 U
Silver	2.7 U	ug/l	10		2.7 U	ug/l	10		2.7 U	ug/l	10	2.7 U
Sodium	1770 J	ug/l	5000		2590 J	ug/l	5000		1800 J	ug/l	5000	25300
Thallium	.88 UJ	ug/l	10		.88 UJ	ug/l	10		.88 UJ	ug/l	10	.88 UJ
Vanadium	2.5 U	ug/l	50		2.5 J	ug/l	50		2.5 U	ug/l	50	49.8 J
Zinc	18.4 J	ug/l	20		22.4	ug/l	20		37.5	ug/l	20	32.5
Cyanide	1.7 U	ug/l	10		1.7 U	ug/l	10		1.7 U	ug/l	10	1.7 U

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02/23/95 WHITING FIELD - PERIMETER SITES 16:16:09
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90191001			90190001			90190002			90196002		
Site Locator	WHITING	WHITING		WHITING	WHITING		WHITING	WHITING		WHITING	WHITING	
Collect Date:	WHF11-2	WHF11-3		WHF11-3A	WHF11-3A		WHF12-1	WHF12-1		WHF12-1	WHF12-1	
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE ug/l												
Aluminum	5860	ug/l	200		24000	ug/l	200		22300	ug/l	200	44.9 J
Antimony	20.7 U	ug/l	60		21 UJ	ug/l	60		21 UJ	ug/l	60	20.7 U
Arsenic	1.6 U	ug/l	10		2 R	ug/l	10		2 R	ug/l	10	1.6 U
Barium	63.6 J	ug/l	200		153 J	ug/l	200		150 J	ug/l	200	19.2 J
Beryllium	.2 U	ug/l	5		1 U	ug/l	5		1.2 J	ug/l	5	.2 U
Cadmium	3.2 UJ	ug/l	5		3 UJ	ug/l	5		3 U	ug/l	5	22.3
Calcium	67700	ug/l	5000		9570	ug/l	5000		9520	ug/l	5000	3000 J
Chromium	44.4	ug/l	10		54.3	ug/l	10		55.2	ug/l	10	3.3 U
Cobalt	4.1 U	ug/l	50		6.1 J	ug/l	50		5.9 J	ug/l	50	4.1 U
Copper	6.4 J	ug/l	25		34	ug/l	25		27.5	ug/l	25	2.1 U
Iron	2280	ug/l	100		37800	ug/l	100		36700	ug/l	100	90.8 J
Lead	2.1 J	ug/l	3		21.9	ug/l	3		19 J	ug/l	3	1.6 J
Magnesium	567 J	ug/l	5000		3570 J	ug/l	5000		3450 J	ug/l	5000	321 J
Manganese	14.5 J	ug/l	15		374	ug/l	15		369	ug/l	15	3.9 J
Mercury	.15 U	ug/l	.2		.15 U	ug/l	.2		.22 J	ug/l	.2	.15 U
Nickel	.9 U	ug/l	40		16.7 J	ug/l	40		13.9 J	ug/l	40	9 U
Potassium	9960	ug/l	5000		3060 J	ug/l	5000		2940 J	ug/l	5000	3550 J
Selenium	2 U	ug/l	5		2 UJ	ug/l	5		2 UJ	ug/l	5	2 U
Silver	2.7 U	ug/l	10		3 U	ug/l	10		3 U	ug/l	10	2.7 U
Sodium	2940 J	ug/l	5000		12800	ug/l	5000		12800	ug/l	5000	2580 J
Thallium	.88 U	ug/l	10		1 U	ug/l	10		1 U	ug/l	10	.88 UJ
Vanadium	12.2 UJ	ug/l	50		61.8	ug/l	50		60.6	ug/l	50	2.5 U
Zinc	15.8 J	ug/l	20		80.8	ug/l	20		81.5	ug/l	20	19.9 J
Cyanide	1.7 U	ug/l	10		2 U	ug/l	10		2 U	ug/l	10	1.7 U

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02/23/95 WHITING FIELD - PERIMETER SITES 16:16:09
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90198002	90198001	90198003	90199002
Site	WHITING	WHITING	WHITING	WHITING
Locator	WHF13-1	WHF13-1B	WHF13-2	WHF14-1
Collect Date:	02-NOV-93	02-NOV-93	02-NOV-93	03-NOV-93
	VALUE	QUAL UNITS	DL	VALUE
CLP METALS AND CYANIDE ug/l				
Aluminum	100 J	ug/l	200	8740 ug/l
Antimony	20.7 U	ug/l	60	20.7 U ug/l
Arsenic	1.6 U	ug/l	10	2.3 J ug/l
Barium	84.3 J	ug/l	200	82 J ug/l
Beryllium	.2 UJ	ug/l	5	.2 UJ ug/l
Cadmium	3.2 U	ug/l	5	3.2 U ug/l
Calcium	24500 ug/l		5000	28000 ug/l
Chromium	3.3 U	ug/l	10	19.1 ug/l
Cobalt	4.1 U	ug/l	50	4.1 U ug/l
Copper	2.1 U	ug/l	25	11 J ug/l
Iron	9910 ug/l		100	16000 ug/l
Lead	1.9 J	ug/l	3	3.6 ug/l
Magnesium	2810 J	ug/l	5000	3410 J ug/l
Manganese	111 ug/l		15	142 ug/l
Mercury	.22 ug/l		.2	.15 U ug/l
Nickel	.9 U	ug/l	40	9 U ug/l
Potassium	1580 J	ug/l	5000	1660 J ug/l
Selenium	.2 U	ug/l	5	.2 U ug/l
Silver	2.7 U	ug/l	10	2.7 U ug/l
Sodium	2420 J	ug/l	5000	8280 ug/l
Thallium	.88 U	ug/l	10	.88 U ug/l
Vanadium	2.5 U	ug/l	50	43.4 J ug/l
Zinc	239 ug/l		20	21.6 ug/l
Cyanide	1.7 U	ug/l	10	1.7 U ug/l

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02/23/95 WHITING FIELD - PERIMETER SITES 16:16:09
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90198004	Site	WHITING	Locator	WHD14-2	Collect Date:	02-NOV-93	90271002	Site	WHITING	Locator	WHD15-1	Collect Date:	03-DEC-93	90210003	Site	WHITING	Locator	WHD15-2B	Collect Date:	09-NOV-93	90210004	Site	WHITING	Locator	WHD15-2BA	Collect Date:	09-NOV-93
	VALUE	QUAL UNITS	DL		VALUE	QUAL UNITS	DL		QUAL UNITS	DL		QUAL UNITS	DL		QUAL UNITS	DL		QUAL UNITS	DL									
CLP METALS AND CYANIDE ug/l																												
Aluminum	1760	ug/l	200		24.5 J	ug/l	200		76400	ug/l	200		45600	ug/l	200		20.7 U	ug/l	60									
Antimony	20.7 U	ug/l	60		20.7 U	ug/l	60		20.7 U	ug/l	60		20.7 U	ug/l	60		20.7 U	ug/l	60									
Arsenic	1.6 U	ug/l	10		1.6 U	ug/l	10		1.6 U	ug/l	10		1.6 U	ug/l	10		1.6 U	ug/l	10									
Barium	23.9 J	ug/l	200		24.3 J	ug/l	200		75.8 J	ug/l	200		56.1 J	ug/l	200		.2 UJ	ug/l	5									
Beryllium	.2 UJ	ug/l	5		.2 U	ug/l	5		.71 J	ug/l	5		.52 J	ug/l	5		3.2 U	ug/l	5									
Cadmium	3.2 U	ug/l	5		7.6	ug/l	5		3.2 U	ug/l	5		5	ug/l	5		5	ug/l	5									
Calcium	906 J	ug/l	5000		8710	ug/l	5000		2430 J	ug/l	5000		2570 J	ug/l	5000		906 J	ug/l	5000									
Chromium	7.9 J	ug/l	10		3.4 J	ug/l	10		71.5	ug/l	10		46.9	ug/l	10		7.9 J	ug/l	10									
Cobalt	4.1 U	ug/l	50		4.3 J	ug/l	50		4.1 U	ug/l	50		4.1 U	ug/l	50		4.1 U	ug/l	50									
Copper	3.5 J	ug/l	25		2.2 J	ug/l	25		30.6	ug/l	25		23.2 J	ug/l	25		3.5 J	ug/l	25									
Iron	2770	ug/l	100		22.6 J	ug/l	100		94500	ug/l	100		78000	ug/l	100		2770	ug/l	100									
Lead	1.2 J	ug/l	3		1 U	ug/l	3		12	ug/l	3		6.8	ug/l	3		1.2 J	ug/l	3									
Magnesium	827 J	ug/l	5000		670 J	ug/l	5000		1240 J	ug/l	5000		1070 J	ug/l	5000		827 J	ug/l	5000									
Manganese	7.5 J	ug/l	15		2.5 J	ug/l	15		1270	ug/l	15		1260	ug/l	15		7.5 J	ug/l	15									
Mercury	.15 U	ug/l	.2		1	ug/l	.2		.15 U	ug/l	.2		.16 J	ug/l	.2		.15 U	ug/l	.2									
Nickel	.9 U	ug/l	40		9 U	ug/l	40		20.5 J	ug/l	40		9 U	ug/l	40		.9 U	ug/l	40									
Potassium	1470 J	ug/l	5000		870 J	ug/l	5000		1110 J	ug/l	5000		1020 J	ug/l	5000		1470 J	ug/l	5000									
Selenium	.2 U	ug/l	5		2 U	ug/l	5		2 U	ug/l	5		2 U	ug/l	5		.2 U	ug/l	5									
Silver	2.7 U	ug/l	10		2.7 U	ug/l	10		3.8 J	ug/l	10		2.7 J	ug/l	10		2.7 U	ug/l	10									
Sodium	2320 J	ug/l	5000		4850 J	ug/l	5000		1080 J	ug/l	5000		1040 J	ug/l	5000		2320 J	ug/l	5000									
Thallium	.88 U	ug/l	10		.88 U	ug/l	10		1 J	ug/l	10		.88 U	ug/l	10		.88 U	ug/l	10									
Vanadium	9.3 J	ug/l	50		2.5 U	ug/l	50		136	ug/l	50		102	ug/l	50		9.3 J	ug/l	50									
Zinc	12 J	ug/l	20		4.9 J	ug/l	20		51.6	ug/l	20		39.5	ug/l	20		12 J	ug/l	20									
Cyanide	1.7 U	ug/l	10		1.7 U	ug/l	10		1.9 J	ug/l	10		2.5 J	ug/l	10		1.7 U	ug/l	10									

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02/23/95 WHITING FIELD - PERIMETER SITES 16:16:09
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90210002			90210001			90203001			90199005		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF15-2C			WHF15-2D			WHF15-3B			WHF15-3C		
Collect Date:	09-NOV-93			09-NOV-93			14-NOV-93			03-NOV-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE ug/l												
Aluminum	39.2 J	ug/l	200		77.2	ug/l	200		10600	ug/l	200	
Antimony	20.7 U	ug/l	60		20.7 U	ug/l	60		20.7 U	ug/l	60	
Arsenic	1.6 U	ug/l	10		1.6 U	ug/l	10		2.1 J	ug/l	10	
Barium	15.9 J	ug/l	200		8.5 J	ug/l	200		46 UJ	ug/l	200	
Beryllium	.2 U	ug/l	5		.2 U	ug/l	5		.2 U	ug/l	5	
Cadmium	3.2 U	ug/l	5		23.3	ug/l	5		3.2 U	ug/l	5	
Calcium	801 J	ug/l	5000		2090 J	ug/l	5000		1080 J	ug/l	5000	
Chromium	3.3 U	ug/l	10		3.3 U	ug/l	10		22.1	ug/l	10	
Cobalt	4.1 U	ug/l	50		4.1 U	ug/l	50		4.1 U	ug/l	50	
Copper	2.1 U	ug/l	25		2.6 J	ug/l	25		13.3 J	ug/l	25	
Iron	46 J	ug/l	100		180	ug/l	100		33000	ug/l	100	
Lead	1 U	ug/l	3		1 U	ug/l	3		6	ug/l	3	
Magnesium	581 J	ug/l	5000		491 J	ug/l	5000		1010 J	ug/l	5000	
Manganese	14.1 J	ug/l	15		11.6 J	ug/l	15		39.6	ug/l	15	
Mercury	.15 U	ug/l	.2		.17 J	ug/l	.2		.15 J	ug/l	.2	
Nickel	.9 U	ug/l	40		10 J	ug/l	40		9 U	ug/l	40	
Potassium	614 U	ug/l	5000		2240 J	ug/l	5000		916 J	ug/l	5000	
Selenium	.2 U	ug/l	5		.2 U	ug/l	5		.2 U	ug/l	5	
Silver	2.7 U	ug/l	10		2.7 U	ug/l	10		2.7 U	ug/l	10	
Sodium	2670 J	ug/l	5000		3860 J	ug/l	5000		1810 J	ug/l	5000	
Thallium	.93 J	ug/l	10		.88 U	ug/l	10		.88 U	ug/l	10	
Vanadium	2.5 U	ug/l	50		2.5 U	ug/l	50		.69	ug/l	50	
Zinc	14.7 J	ug/l	20		16.8 J	ug/l	20		48.4	ug/l	20	
Cyanide	1.7 U	ug/l	10		1.7 U	ug/l	10		1.7 U	ug/l	10	

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02/23/95 WHITING FIELD - PERIMETER SITES 16:16:09
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90199004	Site	WHITING	Locator	WHF15-3D	Collect Date:	03-NOV-93	90199003	WHITING	WHF15-4	03-NOV-93	90271001	WHITING	WHF15-5	03-DEC-93	90214004	WHITING	WHF15-6B	24-NOV-93	
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE ug/l																				
Aluminum	19.9	U	ug/l	200	3350	ug/l	200	519	ug/l	200	9990	ug/l	200	20.7	U	ug/l	60	20.7	ug/l	60
Antimony	20.7	U	ug/l	60	20.7	ug/l	60	20.7	ug/l	60	20.7	ug/l	60	2.1	J	ug/l	10	2.1	ug/l	10
Arsenic	1.6	U	ug/l	10	1.6	ug/l	10	2.3	J	ug/l	10	2.1	J	ug/l	10					
Barium	7.8	J	ug/l	200	23	J	ug/l	200	34.3	J	ug/l	200	126	J	ug/l	200				
Beryllium	.2	UJ	ug/l	5	.2	UJ	ug/l	5	.2	U	ug/l	5	.39	J	ug/l	5				
Cadmium	3.2	U	ug/l	5	3.2	U	ug/l	5	3.2	U	ug/l	5	3.2	U	ug/l	5				
Calcium	2820	J	ug/l	5000	4360	J	ug/l	5000	1320	J	ug/l	5000	7430	ug/l	5000					
Chromium	3.3	U	ug/l	10	32.2	ug/l	10	11.2	ug/l	10	13	ug/l	10							
Cobalt	4.1	U	ug/l	50	4.1	U	ug/l	50	4.1	U	ug/l	50	4.1	U	ug/l	50				
Copper	2.1	U	ug/l	25	5	J	ug/l	25	7.6	J	ug/l	25	19.9	J	ug/l	25				
Iron	66	J	ug/l	100	4700	ug/l	100	3390	ug/l	100	65600	ug/l	100							
Lead	1	U	ug/l	3	1	U	ug/l	3	3.6	ug/l	3	3.9	J	ug/l	5					
Magnesium	1430	J	ug/l	5000	628	J	ug/l	5000	1340	J	ug/l	5000	3590	J	ug/l	5000				
Manganese	1.6	J	ug/l	15	16.5	ug/l	15	41	ug/l	15	291	ug/l	15							
Mercury	.15	U	ug/l	.2	.15	U	ug/l	.2	.15	U	ug/l	.2	.15	U	ug/l	.2				
Nickel	9	U	ug/l	40	14	J	ug/l	40	9	U	ug/l	40	11.7	J	ug/l	40				
Potassium	1100	J	ug/l	5000	3250	J	ug/l	5000	949	J	ug/l	5000	2680	J	ug/l	5000				
Selenium	2	U	ug/l	5	2	U	ug/l	5	2	U	ug/l	5	2	U	ug/l	5				
Silver	2.7	U	ug/l	10	2.7	U	ug/l	10	4.6	J	ug/l	10	2.7	U	ug/l	10				
Sodium	13300	ug/l	5000		3540	J	ug/l	5000	1540	J	ug/l	5000	3800	J	ug/l	5000				
Thallium	.88	U	ug/l	10	.88	U	ug/l	10	.88	U	ug/l	10	.92	J	ug/l	10				
Vanadium	2.5	U	ug/l	50	29.1	J	ug/l	50	2.5	U	ug/l	50	17.6	J	ug/l	50				
Zinc	10.8	J	ug/l	20	16.9	J	ug/l	20	52.7	ug/l	20	43.7	ug/l	20						
Cyanide	1.7	U	ug/l	10	1.7	U	ug/l	10	1.7	U	ug/l	10	2.1	J	ug/l	10				

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02/23/95 WHITING FIELD - PERIMETER SITES 16:16:09
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90214003			90226004			90214002			90272002		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHD15-60			WHD16-1			WHD16-2			WHD16-28		
Collect Date:	24-NOV-93			16-NOV-93			24-NOV-93			06-DEC-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE ug/l												
Aluminum	43 J	ug/l	200		27.2 J	ug/l	200		178 J	ug/l	200	12400
Antimony	20.7 U	ug/l	60		20.7 U	ug/l	60		20.7 U	ug/l	60	60
Arsenic	1.6 U	ug/l	10		1.7 J	ug/l	10		1.6 U	ug/l	10	10
Barium	14.2 J	ug/l	200		31.5 J	ug/l	200		12.3 J	ug/l	200	77.8 J
Beryllium	.26 J	ug/l	5		.2 U	ug/l	5		.2 U	ug/l	5	.26 J
Cadmium	12.7	ug/l	5		3.2 U	ug/l	5		5	ug/l	5	3.2 U
Calcium	802 J	ug/l	5000		1090 J	ug/l	5000		859 J	ug/l	5000	785 J
Chromium	3.3 U	ug/l	10		3.3 U	ug/l	10		3.3 U	ug/l	10	35.5
Cobalt	4.1 U	ug/l	50		4.1 U	ug/l	50		4.1 U	ug/l	50	.5 J
Copper	2.6 J	ug/l	25		8.2 J	ug/l	25		2.1 U	ug/l	25	14 J
Iron	198	ug/l	100		34.5 J	ug/l	100		135	ug/l	100	12400
Lead	1.1 J	ug/l	3		1.8 J	ug/l	3		1.3 J	ug/l	3	5.6
Magnesium	540 J	ug/l	5000		1020 J	ug/l	5000		534 J	ug/l	5000	1270 J
Manganese	10.8 J	ug/l	15		4.2 J	ug/l	15		20.5	ug/l	15	44.4
Mercury	.15 U	ug/l	.2		.15 U	ug/l	.2		.15 U	ug/l	.2	.3 J
Nickel	9 U	ug/l	40		10.6 J	ug/l	40		9 U	ug/l	40	9 U
Potassium	641 J	ug/l	5000		852 J	ug/l	5000		614 U	ug/l	5000	1830 J
Selenium	2 U	ug/l	5		2 U	ug/l	5		2 U	ug/l	5	2 U
Silver	2.7 U	ug/l	10		2.7 U	ug/l	10		2.7 U	ug/l	10	2.7 U
Sodium	2890 J	ug/l	5000		2300 J	ug/l	5000		6850	ug/l	5000	2930 J
Thallium	.91 J	ug/l	10		.88 U	ug/l	10		.88 U	ug/l	10	.88 U
Vanadium	2.5 U	ug/l	50		2.5 U	ug/l	50		2.5 U	ug/l	50	37.3 J
Zinc	17.1 J	ug/l	20		29	ug/l	20		6.5 J	ug/l	20	97.7
Cyanide	1.7 U	ug/l	10		1.7 U	ug/l	10		1.7 J	ug/l	10	1.7 U

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02/23/95 WHITING FIELD - PERIMETER SITES 16:16:09
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90272001			90225001			90221002			90221001					
Site	WHITING			WHITING			WHITING			WHITING					
Locator	WHF16-2C			WHF16-3B			WHF16-3C			WHF16-3CD					
Collect Date:	06-DEC-93			15-NOV-93			12-NOV-93			12-NOV-93					
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL			
CLP METALS AND CYANIDE	ug/l														
Aluminum	25.1	J	ug/l	200	85000	U	ug/l	200	82600	ug/l	200	552	ug/l	200	
Antimony	20.7	U	ug/l	60	104	U	ug/l	60	20.7	U	60	20.7	ug/l	60	
Arsenic	1.6	U	ug/l	10	4.5	J	ug/l	10	3.7	J	10	1.6	ug/l	10	
Barium	34.4	J	ug/l	200	105	J	ug/l	200	297	ug/l	200	18.2	J	ug/l	200
Beryllium	.2	U	ug/l	5	4.7	J	ug/l	5	3.6	J	5	.2	ug/l	5	
Cadmium	3.2	U	ug/l	5	16	U	ug/l	5	56.5	ug/l	5	3.5	J	ug/l	5
Calcium	2120	J	ug/l	5000	79400	ug/l	5000	23000	ug/l	5000	1370	J	ug/l	5000	
Chromium	3.4	J	ug/l	10	219	ug/l	10	225	ug/l	10	3.3	U	ug/l	10	
Cobalt	4.1	U	ug/l	50	21.3	J	ug/l	50	6.2	J	50	4.1	ug/l	50	
Copper	2.8	J	ug/l	25	43.6	J	ug/l	25	87.1	ug/l	25	2.5	J	ug/l	25
Iron	545	ug/l	100	313000	ug/l	100	83700	ug/l	100	565	ug/l	100			
Lead	1.6	J	ug/l	3	15.2	ug/l	3	69.1	ug/l	3	1.1	J	ug/l	3	
Magnesium	1400	J	ug/l	5000	6780	J	ug/l	5000	8660	ug/l	5000	514	J	ug/l	5000
Manganese	115	ug/l	15	1050	ug/l	15	498	ug/l	15	52.6	ug/l	15			
Mercury	.16	J	ug/l	.2	.23	ug/l	.2	.48	ug/l	.2	.15	U	ug/l	.2	
Nickel	.9	U	ug/l	40	82.4	J	ug/l	40	38.5	J	40	.9	ug/l	40	
Potassium	614	U	ug/l	5000	7000	J	ug/l	5000	4780	J	5000	708	J	ug/l	5000
Selenium	2	U	ug/l	5	2	U	ug/l	5	2	U	5	2	ug/l	5	
Silver	3.9	J	ug/l	10	24.3	J	ug/l	10	2.7	U	10	2.7	ug/l	10	
Sodium	3330	J	ug/l	5000	6980	J	ug/l	5000	13500	ug/l	5000	6770	ug/l	5000	
Thallium	.88	U	ug/l	10	.88	U	ug/l	10	.88	U	10	.88	ug/l	10	
Vanadium	2.5	U	ug/l	50	987	ug/l	50	120	ug/l	50	2.5	U	ug/l	50	
Zinc	.8	J	ug/l	20	152	ug/l	20	451	ug/l	20	22.3	J	ug/l	20	
Cyanide	1.7	U	ug/l	10	1.7	U	ug/l	10	1.9	J	10	1.7	ug/l	10	

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02/23/95 WHITING FIELD - PERIMETER SITES 16:16:09
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90220001	Site	WHITING	Locator	WHF16-3D	Collect Date:	11-NOV-93	90220002	WHITING	WHD16-3DA	11-NOV-93	90226001	WHITING	WHD16-4B	16-NOV-93	90226002	WHITING	WHD16-4BA	16-NOV-93
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	
CLP METALS AND CYANIDE ug/l																			
Aluminum	1370	ug/l	200	2590 J	ug/l	200	6280	ug/l	200	5170	ug/l	200							
Antimony	20.7 U	ug/l	60	20.7 U	ug/l	60	20.7 U	ug/l	60	20.7 U	ug/l	60							
Arsenic	1.9 J	ug/l	10	2 J	ug/l	10	3.1 J	ug/l	10	1.6 U	ug/l	10							
Barium	19.1 J	ug/l	200	20.4 J	ug/l	200	25.9 J	ug/l	200	26.3 J	ug/l	200							
Beryllium	.32 J	ug/l	5	.45 J	ug/l	5	.2 U	ug/l	5	.2 U	ug/l	5							
Cadmium	3.2 U	ug/l	5	5.6	ug/l	5	3.2 U	ug/l	5	3.2 U	ug/l	5							
Calcium	2410 J	ug/l	5000	2420 J	ug/l	5000	91600	ug/l	5000	90300	ug/l	5000							
Chromium	4.3 J	ug/l	10	5.1 J	ug/l	10	7 J	ug/l	10	7 J	ug/l	10							
Cobalt	4.1 U	ug/l	50	4.1 U	ug/l	50	4.1 U	ug/l	50	4.1 U	ug/l	50							
Copper	2.6 J	ug/l	25	2.4 J	ug/l	25	6.6 J	ug/l	25	6.5 J	ug/l	25							
Iron	923 J	ug/l	100	1230 J	ug/l	100	4640	ug/l	100	3370	ug/l	100							
Lead	2.2 UJ	ug/l	3	2.4 UJ	ug/l	3	6.1	ug/l	3	4.7	ug/l	3							
Magnesium	903 J	ug/l	5000	955 J	ug/l	5000	7840	ug/l	5000	7720	ug/l	5000							
Manganese	93.4	ug/l	15	94.1	ug/l	15	81.1	ug/l	15	67.2	ug/l	15							
Mercury	.15 U	ug/l	.2	.15 U	ug/l	.2	.15 U	ug/l	.2	.15 U	ug/l	.2							
Nickel	.9 U	ug/l	40	9 U	ug/l	40	9 U	ug/l	40	9 U	ug/l	40							
Potassium	1890 J	ug/l	5000	1770 J	ug/l	5000	3360 J	ug/l	5000	3540 J	ug/l	5000							
Selenium	2 U	ug/l	2	2 U	ug/l	5	2 U	ug/l	5	2 U	ug/l	5							
Silver	2.7 UJ	ug/l	10	2.7 UJ	ug/l	10	2.7 U	ug/l	10	2.7 U	ug/l	10							
Sodium	23200	ug/l	5000	23000	ug/l	5000	3270 J	ug/l	5000	3090 J	ug/l	5000							
Thallium	1 UJ	ug/l	10	.88 U	ug/l	10	.88 U	ug/l	10	.88 U	ug/l	10							
Vanadium	4.4 J	ug/l	50	5 J	ug/l	50	14.2 J	ug/l	50	11.5 J	ug/l	50							
Zinc	14.7 J	ug/l	20	17.8 J	ug/l	20	92.5	ug/l	20	68	ug/l	20							
Cyanide	1.7 U	ug/l	10	1.7 U	ug/l	10	1.7 U	ug/l	10	1.7 U	ug/l	10							

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02/23/95 WHITING FIELD - PERIMETER SITES 16:16:09
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90226003	Site	WHITING	Locator	WHF16-4CD	Collect Date:	16-NOV-93	90225002	WHITING	WHITING	90236003	WHITING	WHITING	90178005		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE ug/l																
Aluminum	111	J	ug/l	200	779	U	ug/l	200	64.8	J	ug/l	200	50.9	J	ug/l	200
Antimony	20.7	U	ug/l	60	20.7	U	ug/l	60	20.7	U	ug/l	60	20.7	U	ug/l	60
Arsenic	1.6	U	ug/l	10	1.6	U	ug/l	10	1.6	U	ug/l	10	1.6	U	ug/l	10
Barium	15.7	J	ug/l	200	20.3	J	ug/l	200	7.9	J	ug/l	200	22	J	ug/l	200
Beryllium	.2	U	ug/l	5	.2	U	ug/l	5	.2	U	ug/l	5	.48	J	ug/l	5
Cadmium	3.9	J	ug/l	5	3.2	U	ug/l	5	3.2	U	ug/l	5	3.2	U	ug/l	5
Calcium	1970	J	ug/l	5000	6350	ug/l	5000	157	J	ug/l	5000	2080	J	ug/l	5000	
Chromium	3.3	U	ug/l	10	3.8	J	ug/l	10	3.3	U	ug/l	10	3.3	U	ug/l	10
Cobalt	4.1	U	ug/l	50	4.1	U	ug/l	50	4.1	U	ug/l	50	4.1	U	ug/l	50
Copper	2.1	U	ug/l	25	2.1	U	ug/l	25	2.1	U	ug/l	25	2.1	U	ug/l	25
Iron	140	ug/l	100	223	ug/l	100	35	J	ug/l	100	51.4	J	ug/l	100		
Lead	1	U	ug/l	3	1.2	J	ug/l	3	1	U	ug/l	3	1	U	ug/l	3
Magnesium	459	J	ug/l	5000	528	J	ug/l	5000	270	J	ug/l	5000	488	J	ug/l	5000
Manganese	18.2	ug/l	15	59.1	ug/l	15	1.7	J	ug/l	15	3.4	J	ug/l	15		
Mercury	.15	U	ug/l	.2	.15	U	ug/l	.2	.15	U	ug/l	.2	.15	U	ug/l	.2
Nickel	9	U	ug/l	40	9	U	ug/l	40	9	U	ug/l	40	9	UJ	ug/l	40
Potassium	614	U	ug/l	5000	614	U	ug/l	5000	614	U	ug/l	5000	1950	J	ug/l	5000
Selenium	2	U	ug/l	5	2	U	ug/l	5	2	U	ug/l	5	2	U	ug/l	5
Silver	2.7	U	ug/l	10	2.7	U	ug/l	10	2.7	U	ug/l	10	2.7	U	ug/l	10
Sodium	3690	J	ug/l	5000	3180	J	ug/l	5000	1630	J	ug/l	5000	1650	J	ug/l	5000
Thallium	.88	U	ug/l	10	.88	U	ug/l	10	.88	U	ug/l	10	.88	U	ug/l	10
Vanadium	2.5	U	ug/l	50	3.5	J	ug/l	50	2.5	U	ug/l	50	2.5	U	ug/l	50
Zinc	25.7	ug/l	20	3.3	J	ug/l	20	2.2	J	ug/l	20	48.5	ug/l	20		
Cyanide	1.7	U	ug/l	10	1.7	U	ug/l	10	1.7	U	ug/l	10	1.7	J	ug/l	10

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02/23/95 WHITING FIELD - PERIMETER SITES 16:16:09
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90180002	Site	WHITING	Locator	WHF17-1B	Collect Date:	20-OCT-93	90179001	WHITING	90179002	WHITING	90181001
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
CLP METALS AND CYANIDE	ug/l											
Aluminum	5630	ug/l	200	2080	J	ug/l	200	1700	J	ug/l	200	15400
Antimony	20.7	U	ug/l	60	20.7	U	ug/l	60	20.7	U	ug/l	60
Arsenic	1.6	UJ	ug/l	10	1.6	UJ	ug/l	10	1.6	UJ	ug/l	10
Barium	75.7	J	ug/l	200	34.4	J	ug/l	200	35.4	J	ug/l	200
Beryllium	.2	J	ug/l	5	.2	UJ	ug/l	5	.2	UJ	ug/l	5
Cadmium	3.2	U	ug/l	5	3.2	U	ug/l	5	3.2	U	ug/l	5
Calcium	2220	J	ug/l	5000	3100	J	ug/l	5000	2590	J	ug/l	5000
Chromium	74.5	ug/l	10	13	ug/l	10	11.8	ug/l	10	201	ug/l	10
Cobalt	6.2	J	ug/l	50	4.1	U	ug/l	50	4.3	J	ug/l	50
Copper	11.3	J	ug/l	25	16.5	UJ	ug/l	25	12.5	UJ	ug/l	25
Iron	3760	ug/l	100	2300	J	ug/l	100	2000	J	ug/l	100	146000
Lead	4.8	ug/l	5	2.7	J	ug/l	5	2.1	J	ug/l	5	15
Magnesium	1170	J	ug/l	5000	752	J	ug/l	5000	691	J	ug/l	5000
Manganese	49.7	ug/l	15	104	ug/l	15	105	ug/l	15	116	ug/l	15
Mercury	.15	U	ug/l	.2	.15	U	ug/l	.2	.15	U	ug/l	.2
Nickel	45.7	ug/l	40	9	U	ug/l	40	9	U	ug/l	40	52.4
Potassium	1500	J	ug/l	5000	915	J	ug/l	5000	974	J	ug/l	5000
Selenium	.2	U	ug/l	5	.2	U	ug/l	5	.2	U	ug/l	5
Silver	2.7	U	ug/l	10	2.7	U	ug/l	10	2.7	U	ug/l	10
Sodium	2930	J	ug/l	5000	3870	J	ug/l	5000	3450	J	ug/l	5000
Thallium	.88	U	ug/l	10	.88	U	ug/l	10	.88	U	ug/l	10
Vanadium	14.6	J	ug/l	50	7.5	J	ug/l	50	6.7	J	ug/l	50
Zinc	39.5	ug/l	20	78.4	ug/l	20	56.6	ug/l	20	89.5	ug/l	20
Cyanide	1.7	U	ug/l	10	1.7	U	ug/l	10	1.9	J	ug/l	10

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02/23/95 WHITING FIELD - PERIMETER SITES 16:16:09
 GOUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90181002			90181003			90186001					
Site	WHITING			WHITING			WHITING					
Locator	WHF18-1			WHF18-2			WHF18-3					
Collect Date:	21-OCT-93			21-OCT-93			25-OCT-93					
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE ug/l												
Aluminum	68.4	J	ug/l	200	13700	ug/l	200	10200	ug/l	200		
Antimony	20.7	U	ug/l	60	20.7	U	60	20.7	U	60		
Arsenic	1.6	UJ	ug/l	10	2.1	J	10	1.6	UJ	10		
Barium	42.7	J	ug/l	200	64.5	J	200	29	J	200		
Beryllium	.2	UJ	ug/l	5	.41	J	5	.82	J	5		
Cadmium	3.2	U	ug/l	5	3.2	U	5	3.2	U	5		
Calcium	1910	J	ug/l	5000	705	J	5000	345	J	5000		
Chromium	3.3	U	ug/l	10	70.8	ug/l	10	32.6	ug/l	10		
Cobalt	4.1	U	ug/l	50	4.5	J	50	4.1	U	50		
Copper	2.1	U	ug/l	25	43.5	J	25	27.8	UJ	25		
Iron	73.2	J	ug/l	100	24800	ug/l	100	61800	ug/l	100		
Lead	1	U	ug/l	3	7.4	ug/l	3	2.5	UJ	3		
Magnesium	1000	J	ug/l	5000	1170	J	5000	650	J	5000		
Manganese	6.1	J	ug/l	15	74.1	ug/l	15	31.4	ug/l	15		
Mercury	.15	U	ug/l	.2	.2	J	.2	.15	U	.2		
Nickel	.9	U	ug/l	40	28	J	40	15.2	J	40		
Potassium	775	J	ug/l	5000	2120	J	5000	685	J	5000		
Selenium	2	U	ug/l	5	2	U	5	2	U	5		
Silver	2.7	U	ug/l	10	2.7	U	10	2.7	U	10		
Sodium	1670	J	ug/l	5000	1430	J	5000	1320	J	5000		
Thallium	.88	U	ug/l	10	.88	U	10	.88	U	10		
Vanadium	2.5	U	ug/l	50	94.8	ug/l	50	133	ug/l	50		
Zinc	29	ug/l		20	461	ug/l	20	37	ug/l	20		
Cyanide	1.7	U	ug/l	10	1.7	U	10	1.7	U	10		

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02/23/95 WHITING FIELD - PERIMETER SITES 14:51:49
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90175001			90174005			90174004			90177001			
Site	WHITING			WHITING			WHITING			WHITING			
Locator	WHFBKG-1			WHFBKG2			WHFBKG3			WHF1-1			
Collect Date:	15-OCT-93			14-OCT-93			14-OCT-93			18-OCT-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	
CLP VOLATILES 90-SOW	ug/l												
Chloromethane	10 U	ug/l	10	10	10 UJ	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10
Bromomethane	10 U	ug/l	10	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Vinyl chloride	10 U	ug/l	10	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroethane	10 U	ug/l	10	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Methylene chloride	10 U	ug/l	10	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acetone	10 U	ug/l	10	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Carbon disulfide	10 U	ug/l	10	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethene	10 U	ug/l	10	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethane	10 U	ug/l	10	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethene (total)	10 U	ug/l	10	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroform	10 U	ug/l	10	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethane	10 U	ug/l	10	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Butanone	10 U	ug/l	10	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,1-Trichloroethane	10 U	ug/l	10	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Carbon tetrachloride	10 U	ug/l	10	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromodichloromethane	10 U	ug/l	10	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloropropane	10 U	ug/l	10	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
cis-1,3-Dichloropropene	10 U	ug/l	10	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Trichloroethene	10 U	ug/l	10	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Dibromochloromethane	10 U	ug/l	10	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2-Trichloroethane	10 U	ug/l	10	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzene	10 U	ug/l	10	10	10 U	ug/l	10	4 J	ug/l	10	10 U	ug/l	10
trans-1,3-Dichloropropene	10 U	ug/l	10	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromoform	10 U	ug/l	10	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methyl-2-pentanone	10 U	ug/l	10	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Hexanone	10 U	ug/l	10	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Tetrachloroethene	10 U	ug/l	10	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Toluene	10 U	ug/l	10	10	10 U	ug/l	10	13	ug/l	10	10 U	ug/l	10
1,1,2,2-Tetrachloroethane	10 U	ug/l	10	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chlorobenzene	10 U	ug/l	10	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Ethylbenzene	10 U	ug/l	10	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Styrene	10 U	ug/l	10	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Xylenes (total)	10 U	ug/l	10	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

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02/23/95 WHITING FIELD - PERIMETER SITES 14:51:49
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90177002	90178001	90175002	90178002					
Site	WHITING	WHITING	WHITING	WHITING					
Locator	WHF1-1B	WHF1-2	WHF1-3	WHF2-1					
Collect Date:	18-OCT-93	19-OCT-93	15-OCT-93	19-OCT-93					
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS					
CLP VOLATILES 90-SOW	ug/l								
Chloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromomethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Vinyl chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Methylene chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acetone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Carbon disulfide	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethene (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Butanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,1-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Carbon tetrachloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromodichloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloropropane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
cis-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Trichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Dibromochloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
trans-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromoform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methyl-2-pentanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Hexanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Tetrachloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Toluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2,2-Tetrachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Ethylbenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Styrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Xylenes (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

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02/23/95 WHITING FIELD - PERIMETER SITES 14:51:49
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90178004	90188001	90188002	90189001								
Site	WHITING	WHITING	WHITING	WHITING								
Locator	WHF2-1A	WHF9-1	WHF9-2	WHF9-3								
Collect Date:	19-OCT-93	26-OCT-93	26-OCT-93	27-OCT-93								
	VALUE	QUAL UNITS	DL	VALUE								
CLP VOLATILES 90-SOW	ug/l											
Chloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromomethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Vinyl chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Methylene chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acetone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	16 UJ	ug/l	10
Carbon disulfide	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethene (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Butanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,1-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Carbon tetrachloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromodichloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloropropane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
cis-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Trichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Dibromochloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
trans-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromoform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methyl-2-pentanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Hexanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Tetrachloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Toluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2,2-Tetrachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Ethylbenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Styrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Xylenes (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - PERIMETER SITES 14:51:49
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90189005	90189004	90194001	90191002								
Site	WHITING	WHITING	WHITING	WHITING								
Locator	WHF10-1	WHF10-2	WHF11-1	WHF11-1B								
Collect Date:	27-OCT-93	27-OCT-93	29-OCT-93	28-OCT-93								
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS								
CLP VOLATILES 90-SOW	ug/l											
Chloromethane	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10
Bromomethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Vinyl chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Methylene chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acetone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Carbon disulfide	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethene (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	9 J	ug/l	10
Chloroform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Butanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,1-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Carbon tetrachloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromodichloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloropropane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
cis-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Trichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Dibromochloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
trans-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromoform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methyl-2-pentanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Hexanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Tetrachloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Toluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2,2-Tetrachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Ethylbenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Styrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Xylenes (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

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02/23/95 WHITING FIELD - PERIMETER SITES 14:51:49
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90191001	90190001	90190002	90196002								
Site	WHITING	WHITING	WHITING	WHITING								
Locator	WHF11-2	WHF11-3	WHF11-3A	WHF12-1								
Collect Date:	28-OCT-93	28-OCT-93	28-OCT-93	01-NOV-93								
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS								
CLP VOLATILES 90-SOW	ug/l											
Chloromethane	10 UJ	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10
Bromomethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Vinyl chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Methylene chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acetone	94 J	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
Carbon disulfide	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethene (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Butanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,1-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Carbon tetrachloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromodichloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloropropane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
cis-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Trichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Dibromochloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
trans-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromoform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methyl-2-pentanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Hexanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Tetrachloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Toluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2,2-Tetrachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Ethylbenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Styrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Xylenes (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - PERIMETER SITES 14:51:49
GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90198002	90198001	90198003	90199002								
Site Locator	WHITING WHF13-1	WHITING WHF13-1B	WHITING WHF13-2	WHITING WHF14-1								
Collect Date:	02-NOV-93	02-NOV-93	02-NOV-93	03-NOV-93								
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
CLP VOLATILES 90-SOW	ug/l											
Chloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromomethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Vinyl chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Methylene chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
Acetone	10 UJ	ug/l	10	10 UJ	ug/l	10	70 J	ug/l	10	10 UJ	ug/l	10
Carbon disulfide	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethene (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Butanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,1-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Carbon tetrachloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromodichloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloropropane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
cis-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Trichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Dibromochloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
trans-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromoform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methyl-2-pentanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Hexanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Tetrachloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Toluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2,2-Tetrachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Ethylbenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Styrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Xylenes (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE D = DOUBLE INTERMEDIATE SAMPLE E = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - PERIMETER SITES 14:51:49
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90198004	Site	WHITING	Locator	WHF14-2	Collect Date:	02-NOV-93	90271002	WHITING	WHF15-1	03-DEC-93	90210003	WHITING	WHF15-2B	09-NOV-93	90210004	WHITING	WHF15-2BA	09-NOV-93
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	
CLP VOLATILES 90-SOW ug/l																			
Chloromethane	10 U	ug/l	10	10 UJ	ug/l	10	1 J	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Bromomethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Vinyl chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Chloroethane	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	
Methylene chloride	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	
Acetone	10 UJ	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	
Carbon disulfide	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
1,1-Dichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
1,1-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
1,2-Dichloroethene (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Chloroform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
1,2-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
2-Butanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
1,1,1-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Carbon tetrachloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Bromodichloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
1,2-Dichloropropane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
cis-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Trichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Dibromochloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
1,1,2-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Benzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
trans-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Bromoform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
4-Methyl-2-pentanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
2-Hexanone	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	
Tetrachloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Toluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
1,1,2,2-Tetrachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Chlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Ethylbenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Styrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Xylenes (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - PERIMETER SITES 14:51:49
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90210002	90210001	90203001	90199005					
Site	WHITING	WHITING	WHITING	WHITING					
Locator	WHF15-2C	WHF15-2D	WHF15-3B	WHF15-3C					
Collect Date:	09-NOV-93	09-NOV-93	14-NOV-93	03-NOV-93					
	VALUE	QUAL UNITS	DL	VALUE					
CLP VOLATILES 90-SOW	ug/l								
Chloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromomethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Vinyl chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroethane	10 UJ	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10
Methylene chloride	10 UJ	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10
Acetone	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10
Carbon disulfide	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethene (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Butanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,1-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Carbon tetrachloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromodichloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloropropane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
cis-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Trichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Dibromochloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzene	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
trans-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromoform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methyl-2-pentanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Hexanone	10 UJ	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10
Tetrachloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Toluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2,2-Tetrachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Ethylbenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Styrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Xylenes (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE D = DOUBLE INTERMEDIATE SAMPLE E = DEEP SAMPLE

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02/23/95 WHITING FIELD - PERIMETER SITES 14:51:49
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90199004			90199003			90271001			90214004		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF15-3D			WHF15-4			WHF15-5			WHF15-6B		
Collect Date:	03-NOV-93			03-NOV-93			03-DEC-93			24-NOV-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW	ug/l											
Chloromethane	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10
Bromomethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Vinyl chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
Methylene chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
Acetone	10 UJ	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
Carbon disulfide	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethene (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	3 J	ug/l	10
Chloroform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Butanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
1,1,1-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Carbon tetrachloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromodichloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloropropane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
cis-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Trichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Dibromochloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
trans-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromoform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methyl-2-pentanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Hexanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
Tetrachloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Toluene	10 U	ug/l	10	7 J	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2,2-Tetrachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	5 J	ug/l	10
Ethylbenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	7 J	ug/l	10
Styrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Xylenes (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

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02/23/95 WHITING FIELD - PERIMETER SITES 14:51:49
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90214003			90226004			90214002			90272002		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF15-6D			WHF16-1			WHF16-2			WHF16-2B		
Collect Date:	24-NOV-93			16-NOV-93			24-NOV-93			06-DEC-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW	ug/l											
Chloromethane	10 UJ	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10
Bromomethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Vinyl chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroethane	10 UJ	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10
Methylene chloride	10 UJ	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10
Acetone	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10
Carbon disulfide	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethene (total)	10 U	ug/l	10	10 U	ug/l	10	4 J	ug/l	10	10 U	ug/l	10
Chloroform	10 U	ug/l	10	10 U	ug/l	10	3 J	ug/l	10	10 U	ug/l	10
1,2-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	3 J	ug/l	10	10 U	ug/l	10
2-Butanone	10 UJ	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10
1,1,1-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Carbon tetrachloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromodichloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloropropane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
cis-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Trichloroethene	10 U	ug/l	10	10 U	ug/l	10	6 J	ug/l	10	10 U	ug/l	10
Dibromo-chloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzene	10 U	ug/l	10	10 U	ug/l	10	59 J	ug/l	10	10 U	ug/l	10
trans-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromoform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methyl-2-pentanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Hexanone	10 UJ	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10
Tetrachloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Toluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2,2-Tetrachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Ethylbenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Styrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Xylenes (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

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02/23/95 WHITING FIELD - PERIMETER SITES 14:51:49
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90272001	90225001	90221002	90221001								
Site	WHITING	WHITING	WHITING	WHITING								
Locator	WHF16-2C	WHF16-3B	WHF16-3C	WHF16-3CD								
Collect Date:	06-DEC-93	15-NOV-93	12-NOV-93	12-NOV-93								
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS								
CLP VOLATILES 90-SOW	ug/l											
Chloromethane	10 UJ	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10	100 U	ug/l	100
Bromomethane	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10	100 UJ	ug/l	100
Vinyl chloride	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10	100 U	ug/l	100
Chloroethane	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10	100 UJ	ug/l	100
Methylene chloride	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10	100 UJ	ug/l	100
Acetone	10 U	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	100 U	ug/l	100
Carbon disulfide	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	100 UJ	ug/l	100
1,1-Dichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	100 U	ug/l	100
1,1-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	100 U	ug/l	100
1,2-Dichloroethene (total)	10 U	ug/l	10	10 U	ug/l	10	2 J	ug/l	10	34 J	ug/l	100
Chloroform	10 U	ug/l	10	10 U	ug/l	10	3 J	ug/l	10	100 U	ug/l	100
1,2-Dichloroethane	20	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	100 U	ug/l	100
2-Butanone	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10	100 UJ	ug/l	100
1,1,1-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	100 U	ug/l	100
Carbon tetrachloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	100 U	ug/l	100
Bromodichloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	100 U	ug/l	100
1,2-Dichloropropane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	100 U	ug/l	100
cis-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	100 U	ug/l	100
Trichloroethene	10 U	ug/l	10	10 U	ug/l	10	4 J	ug/l	10	100 U	ug/l	100
Dibromochloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	100 U	ug/l	100
1,1,2-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	100 U	ug/l	100
Benzene	560 J	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10	1200 B	ug/l	100
trans-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	100 U	ug/l	100
Bromoform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	100 U	ug/l	100
4-Methyl-2-pentanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	100 U	ug/l	100
2-Hexanone	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10	100 UJ	ug/l	100
Tetrachloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	100 U	ug/l	100
Toluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	100 U	ug/l	100
1,1,2,2-Tetrachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	100 U	ug/l	100
Chlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	100 U	ug/l	100
Ethylbenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	22 J	ug/l	100
Styrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	100 U	ug/l	100
Xylenes (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	100 U	ug/l	100

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

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02/23/95 WHITING FIELD - PERIMETER SITES 14:51:49
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90220001	Site	WHITING	Locator	WHF16-3D	Collect Date:	11-NOV-93	90220002	WHITING	WHF16-3DA	11-NOV-93	90226001	WHITING	WHF16-4B	16-NOV-93	90226002	WHITING	WHF16-4BA	16-NOV-93
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	
CLP VOLATILES 90-SOW	ug/l																		
Chloromethane	10 U	ug/l	10	10 U	ug/l	10	5 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Bromomethane	10 UJ	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Vinyl chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Chloroethane	10 UJ	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Methylene chloride	10 UJ	ug/l	10	10 UJ	ug/l	10	2 J	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10	
Acetone	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	
Carbon disulfide	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
1,1-Dichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
1,1-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
1,2-Dichloroethene (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Chloroform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
1,2-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
2-Butanone	10 UJ	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
1,1,1-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Carbon tetrachloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Bromodichloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
1,2-Dichloropropane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
cis-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Trichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Dibromochloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
1,1,2-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Benzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
trans-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Bromoform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
4-Methyl-2-pentanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
2-Hexanone	10 UJ	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Tetrachloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Toluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
1,1,2,2-Tetrachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Chlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Ethylbenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Styrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Xylenes (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE D = DOUBLE INTERMEDIATE SAMPLE E = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - PERIMETER SITES 14:51:49
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90226003			90225002			90236003			90178005		
Site	WHITING			WHITING	WHITING			WHITING	WHITING			
Locator	WHF16-4CD			WHF16-4D	WHF16-5			WHF17-1	WHF17-1			
Collect Date:	16-NOV-93			15-NOV-93	17-NOV-93			19-OCT-93	19-OCT-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW	ug/l											
Chloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromomethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Vinyl chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Methylene chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acetone	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10
Carbon disulfide	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethene (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Butanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,1-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Carbon tetrachloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromodichloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloropropane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
cis-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Trichloroethene	4 J	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Dibromochloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
trans-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromoform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methyl-2-pentanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Hexanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Tetrachloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Toluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2,2-Tetrachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Ethylbenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Styrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Xylenes (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - PERIMETER SITES 14:51:49
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90180002			90179001			90179002			90181001			
Site	WHITING			WHITING		<th>WHITING</th> <td></td> <td><th>WHITING</th><td></td><td></td></td>	WHITING		<th>WHITING</th> <td></td> <td></td>	WHITING			
Locator	WHF17-1B			WHF17-2B		<th>WHF17-2BA</th> <td></td> <td><th>WHF17-3</th><td></td><td></td></td>	WHF17-2BA		<th>WHF17-3</th> <td></td> <td></td>	WHF17-3			
Collect Date:	20-OCT-93			20-OCT-93		<th>20-OCT-93</th> <td></td> <td><th>21-OCT-93</th><td></td><td></td></td>	20-OCT-93		<th>21-OCT-93</th> <td></td> <td></td>	21-OCT-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	DL	VALUE	QUAL	UNITS
													DL
CLP VOLATILES 90-SOW	ug/l												
Chloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U
Bromomethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U
Vinyl chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U
Chloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U
Methylene chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U
Acetone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U
Carbon disulfide	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U
1,1-Dichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U
1,1-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U
1,2-Dichloroethene (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U
Chloroform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U
1,2-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U
2-Butanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U
1,1,1-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U
Carbon tetrachloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U
Bromodichloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U
1,2-Dichloropropane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U
cis-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U
Trichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U
Dibromochloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U
1,1,2-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U
Benzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U
trans-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U
Bromoform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U
4-Methyl-2-pentanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U
2-Hexanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U
Tetrachloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U
Toluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U
1,1,2,2-Tetrachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U
Chlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U
Ethylbenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U
Styrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U
Xylenes (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE JJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

02/23/95 WHITING FIELD - PERIMETER SITES 14:51:49
 GROUNDWATER SAMPLES - ANALYTICAL REPORT

Lab Sample Number:	90181002	90181003	90186001					
Site	WHITING	WHITING	WHITING					
Locator	WHF18-1	WHF18-2	WHF18-3					
Collect Date:	21-OCT-93	21-OCT-93	25-OCT-93					
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP VOLATILES 90-SOW

ug/l

Chloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromomethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Vinyl chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Methylene chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acetone	12 UJ	ug/l	10	10 UJ	ug/l	10	12 UJ	ug/l	10
Carbon disulfide	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethene (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Butanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,1-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Carbon tetrachloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromodichloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloropropane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
cis-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Trichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Dibromochloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
trans-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromoform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methyl-2-pentanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Hexanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Tetrachloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Toluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2,2-Tetrachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Ethylbenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Styrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Xylenes (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

Locator Annotations: A = DUPLICATE SAMPLE B = SHALLOW SAMPLE C = INTERMEDIATE SAMPLE CD = DOUBLE INTERMEDIATE SAMPLE D = DEEP SAMPLE

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

03/08/95 NAS WHITING - SITE 1466 - UST 11:06:48
ANALYTICAL REPORT

Lab Sample Number:	90127006			90101002			90127005			90127004		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF14661			WHF146613			WHF146615			WHF146616		
Collect Date:	28-AUG-93			19-AUG-93			28-AUG-93			28-AUG-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW	ug/l											
Chloromethane	10	U	ug/l	10	100	U	ug/l	100	10	U	ug/l	10
Bromomethane	10	U	ug/l	10	100	U	ug/l	100	10	U	ug/l	10
Vinyl chloride	10	U	ug/l	10	100	U	ug/l	100	10	U	ug/l	10
Chloroethane	10	UJ	ug/l	10	100	U	ug/l	100	10	UJ	ug/l	10
Methylene chloride	1	J	ug/l	10	100	U	ug/l	100	1	J	ug/l	10
Acetone	10	U	ug/l	10	130	ug/l	100	10	U	ug/l	10	10
Carbon disulfide	10	U	ug/l	10	100	U	ug/l	100	10	U	ug/l	10
1,1-Dichloroethene	10	U	ug/l	10	100	U	ug/l	100	10	U	ug/l	10
1,1-Dichloroethane	10	U	ug/l	10	100	U	ug/l	100	10	U	ug/l	10
1,2-Dichloroethene (total)	10	U	ug/l	10	47	J	ug/l	100	13	ug/l	10	10
Chloroform	10	U	ug/l	10	100	U	ug/l	100	2	J	ug/l	10
1,2-Dichloroethane	10	U	ug/l	10	100	U	ug/l	100	10	U	ug/l	10
2-Butanone	10	U	ug/l	10	100	U	ug/l	100	10	U	ug/l	10
1,1,1-Trichloroethane	10	U	ug/l	10	100	U	ug/l	100	10	U	ug/l	10
Carbon tetrachloride	10	U	ug/l	10	100	U	ug/l	100	10	U	ug/l	10
Bromodichloromethane	10	U	ug/l	10	100	U	ug/l	100	10	U	ug/l	10
1,2-Dichloropropene	10	U	ug/l	10	100	U	ug/l	100	10	U	ug/l	10
cis-1,3-Dichloropropene	10	U	ug/l	10	100	U	ug/l	100	10	U	ug/l	10
Trichloroethene	49	ug/l	10	1400	ug/l	100	250	ug/l	10	67	ug/l	10
Dibromochloromethane	10	U	ug/l	10	100	U	ug/l	100	10	U	ug/l	10
1,1,2-Trichloroethane	10	U	ug/l	10	100	U	ug/l	100	10	U	ug/l	10
Benzene	160	ug/l	10	100	U	ug/l	100	10	U	ug/l	10	10
trans-1,3-Dichloropropene	10	U	ug/l	10	100	U	ug/l	100	10	U	ug/l	10
Bromoform	10	U	ug/l	10	100	U	ug/l	100	10	U	ug/l	10
4-Methyl-2-pentanone	10	U	ug/l	10	100	U	ug/l	100	10	U	ug/l	10
2-Hexanone	10	U	ug/l	10	100	U	ug/l	100	10	U	ug/l	10
Tetrachloroethene	10	U	ug/l	10	100	U	ug/l	100	10	U	ug/l	10
Toluene	6	J	ug/l	10	100	U	ug/l	100	10	U	ug/l	10
1,1,2,2-Tetrachloroethane	10	U	ug/l	10	100	U	ug/l	100	10	U	ug/l	10
Chlorobenzene	10	U	ug/l	10	100	U	ug/l	100	10	U	ug/l	10
Ethylbenzene	7	J	ug/l	10	100	U	ug/l	100	10	U	ug/l	10
Styrene	10	U	ug/l	10	100	U	ug/l	100	10	U	ug/l	10
Xylenes (total)	27	ug/l	10	100	U	ug/l	100	10	U	ug/l	10	10

Qualifiers: U = NOT DETECTED, J = ESTIMATED VALUE, UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED, R = RESULT IS REJECTED AND UNUSABLE

03/08/95 NAS WHITING - SITE 1466 - UST 11:06:48
ANALYTICAL REPORT

Lab Sample Number:	90128001	Site	WHITING	Locator	WHF146617	Collect Date:	29-AUG-93	90121002	WHITING	WHF146618	26-AUG-93	90098003	WHITING	WHF146619	18-AUG-93	90098005	WHITING	WHFDUP1	18-AUG-93
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	
CLP VOLATILES 90-SOW	ug/l																		
Chloromethane	10 U	ug/l	10	2000 U	ug/l	2000	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Bromomethane	10 U	ug/l	10	2000 U	ug/l	2000	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Vinyl chloride	10 U	ug/l	10	2000 U	ug/l	2000	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Chloroethane	10 U	ug/l	10	2000 U	ug/l	2000	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Methylene chloride	10 U	ug/l	10	2000 U	ug/l	2000	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Acetone	10 U	ug/l	10	2000 U	ug/l	2000	10 U	ug/l	10	10 U	ug/l	10	11 U	ug/l	10	10 U	ug/l	10	
Carbon disulfide	10 U	ug/l	10	2000 U	ug/l	2000	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
1,1-Dichloroethene	10 U	ug/l	10	2000 U	ug/l	2000	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
1,1-Dichloroethane	10 U	ug/l	10	2000 U	ug/l	2000	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
1,2-Dichloroethene (total)	10 U	ug/l	10	2000 U	ug/l	2000	2 J	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Chloroform	10 U	ug/l	10	2000 U	ug/l	2000	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
1,2-Dichloroethane	10 U	ug/l	10	2000 U	ug/l	2000	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
2-Butanone	10 U	ug/l	10	2000 U	ug/l	2000	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
1,1,1-Trichloroethane	10 U	ug/l	10	2000 U	ug/l	2000	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Carbon tetrachloride	10 U	ug/l	10	2000 U	ug/l	2000	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Bromodichloromethane	10 U	ug/l	10	2000 U	ug/l	2000	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
1,2-Dichloropropane	10 U	ug/l	10	2000 U	ug/l	2000	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
cis-1,3-Dichloropropene	10 U	ug/l	10	2000 U	ug/l	2000	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Trichloroethene	10 U	ug/l	10	490 J	ug/l	2000	8 J	ug/l	10	10 U	ug/l	10	2 J	ug/l	10	10 U	ug/l	10	
Dibromochloromethane	10 U	ug/l	10	2000 U	ug/l	2000	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
1,1,2-Trichloroethane	10 U	ug/l	10	2000 U	ug/l	2000	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Benzene	10 U	ug/l	10	14000	ug/l	2000	1 J	ug/l	10	1 J	ug/l	10	1 J	ug/l	10	1 J	ug/l	10	
trans-1,3-Dichloropropene	10 U	ug/l	10	2000 U	ug/l	2000	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Bromoform	10 U	ug/l	10	2000 U	ug/l	2000	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
4-Methyl-2-pentanone	10 U	ug/l	10	2000 U	ug/l	2000	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
2-Hexanone	10 U	ug/l	10	2000 U	ug/l	2000	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Tetrachloroethene	10 U	ug/l	10	2000 U	ug/l	2000	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Toluene	10 U	ug/l	10	11000	ug/l	2000	10 U	ug/l	10	10 U	ug/l	10	2 J	ug/l	10	10 U	ug/l	10	
1,1,2,2-Tetrachloroethane	10 U	ug/l	10	2000 U	ug/l	2000	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Chlorobenzene	10 U	ug/l	10	2000 U	ug/l	2000	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Ethylbenzene	10 U	ug/l	10	2300	ug/l	2000	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Styrene	10 U	ug/l	10	2000 U	ug/l	2000	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	
Xylenes (total)	10 U	ug/l	10	12000	ug/l	2000	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	

Qualifiers: U = NOT DETECTED, J = ESTIMATED VALUE, UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED, R = RESULT IS REJECTED AND UNUSABLE

03/08/95 NAS WHITING - SITE 1466 - UST 11:06:48
 ANALYTICAL REPORT

Lab Sample Number:	90101001			90101003			90098004			90121001		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF146620			WHFDUP2			WHF71			WHF14661D		
Collect Date:	19-AUG-93			19-AUG-93			18-AUG-93			26-AUG-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW	ug/l											
Chloromethane	10	U	ug/l	10	10	U	ug/l	10	500	U	ug/l	500
Bromomethane	10	U	ug/l	10	10	U	ug/l	10	500	U	ug/l	500
Vinyl chloride	10	U	ug/l	10	10	U	ug/l	10	190	J	ug/l	500
Chloroethane	10	U	ug/l	10	10	U	ug/l	10	500	U	ug/l	500
Methylene chloride	10	U	ug/l	10	10	U	ug/l	10	500	U	ug/l	500
Acetone	10	U	ug/l	10	10	U	ug/l	10	930	U	ug/l	500
Carbon disulfide	10	U	ug/l	10	10	U	ug/l	10	500	U	ug/l	500
1,1-Dichloroethene	10	U	ug/l	10	10	U	ug/l	10	500	U	ug/l	500
1,1-Dichloroethane	10	U	ug/l	10	10	U	ug/l	10	500	U	ug/l	500
1,2-Dichloroethene (total)	10	U	ug/l	10	10	U	ug/l	10	170	J	ug/l	500
Chloroform	10	U	ug/l	10	10	U	ug/l	10	500	U	ug/l	500
1,2-Dichloroethane	10	U	ug/l	10	10	U	ug/l	10	500	U	ug/l	500
2-Butanone	10	U	ug/l	10	10	U	ug/l	10	500	U	ug/l	500
1,1,1-Trichloroethane	10	U	ug/l	10	10	U	ug/l	10	500	U	ug/l	500
Carbon tetrachloride	10	U	ug/l	10	10	U	ug/l	10	500	U	ug/l	500
Bromodichloromethane	10	U	ug/l	10	10	U	ug/l	10	500	U	ug/l	500
1,2-Dichloropropane	10	U	ug/l	10	10	U	ug/l	10	500	U	ug/l	500
cis-1,3-Dichloropropene	10	U	ug/l	10	10	U	ug/l	10	500	U	ug/l	500
Trichloroethene	7	J	ug/l	10	7	J	ug/l	10	230	J	ug/l	500
Dibromochloromethane	10	U	ug/l	10	10	U	ug/l	10	500	U	ug/l	500
1,1,2-Trichloroethane	10	U	ug/l	10	10	U	ug/l	10	500	U	ug/l	500
Benzene	7	J	ug/l	10	7	J	ug/l	10	7400	U	ug/l	500
trans-1,3-Dichloropropene	10	U	ug/l	10	10	U	ug/l	10	500	U	ug/l	500
Bromoform	10	U	ug/l	10	10	U	ug/l	10	500	U	ug/l	500
4-Methyl-2-pentanone	10	U	ug/l	10	10	U	ug/l	10	500	U	ug/l	500
2-Hexanone	10	U	ug/l	10	10	U	ug/l	10	500	U	ug/l	500
Tetrachloroethene	10	U	ug/l	10	10	U	ug/l	10	500	U	ug/l	500
Toluene	2	J	ug/l	10	2	J	ug/l	10	39000	U	ug/l	500
1,1,2,2-Tetrachloroethane	10	U	ug/l	10	10	U	ug/l	10	500	U	ug/l	500
Chlorobenzene	10	U	ug/l	10	10	U	ug/l	10	500	U	ug/l	500
Ethylbenzene	4	J	ug/l	10	4	J	ug/l	10	2400	U	ug/l	500
Styrene	10	U	ug/l	10	10	U	ug/l	10	500	U	ug/l	500
Xylenes (total)	23	.ug/l	10	22	.ug/l	10	.ug/l	10	4400	.ug/l	.ug/l	10

Qualifiers: U = NOT DETECTED, J = ESTIMATED VALUE, UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED, R = RESULT IS REJECTED AND UNUSABLE

03/08/95 NAS WHITING - SITE 1466 - UST 11:06:48
 ANALYTICAL REPORT

Lab Sample Number: 90128002
 Site WHITING
 Locator WHF14663D
 Collect Date: 29-AUG-93

VALUE QUAL UNITS DL

CLP VOLATILES 90-SOW

	ug/l			
Chloromethane	10 U	ug/l	10	
Bromomethane	10 U	ug/l	10	
Vinyl chloride	10 U	ug/l	10	
Chloroethane	10 U	ug/l	10	
Methylene chloride	10 U	ug/l	10	
Acetone	15 U	ug/l	10	
Carbon disulfide	10 U	ug/l	10	
1,1-Dichloroethene	2 J	ug/l	10	
1,1-Dichloroethane	10 U	ug/l	10	
1,2-Dichloroethene (total)	10 U	ug/l	10	
Chloroform	10 U	ug/l	10	
1,2-Dichloroethane	10 U	ug/l	10	
2-Butanone	10 U	ug/l	10	
1,1,1-Trichloroethane	10 U	ug/l	10	
Carbon tetrachloride	10 U	ug/l	10	
Bromodichloromethane	10 U	ug/l	10	
1,2-Dichloropropane	10 U	ug/l	10	
cis-1,3-Dichloropropene	10 U	ug/l	10	
Trichloroethene	10 U	ug/l	10	
Dibromochloromethane	10 U	ug/l	10	
1,1,2-Trichloroethane	10 U	ug/l	10	
Benzene	10 U	ug/l	10	
trans-1,3-Dichloropropene	10 U	ug/l	10	
Bromoform	10 U	ug/l	10	
4-Methyl-2-pentanone	10 U	ug/l	10	
2-Hexanone	10 U	ug/l	10	
Tetrachloroethene	10 U	ug/l	10	
Toluene	10 U	ug/l	10	
1,1,2,2-Tetrachloroethane	10 U	ug/l	10	
Chlorobenzene	10 U	ug/l	10	
Ethylbenzene	10 U	ug/l	10	
Styrene	10 U	ug/l	10	
Xylenes (total)	10 U	ug/l	10	

Qualifiers: U = NOT DETECTED, J = ESTIMATED VALUE, UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED, R = RESULT IS REJECTED AND UNUSABLE

03/08/95 NAS WHITING - SITE 1466 - UST 11:13:13
ANALYTICAL REPORT

Lab Sample Number:	90127006			90101002			90127005			90127004		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF14661			WHF146613			WHF146615			WHF146616		
Collect Date:	28-AUG-93			19-AUG-93			28-AUG-93			28-AUG-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW	ug/l											
Phenol	3 J	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroethyl) ether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Chlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,3-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,4-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,2-oxybis(1-Chloropropane)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
N-Nitroso-di-n-propylamine	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Nitrobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Isophorone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitrophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dimethylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroethoxy) methane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2,4-Trichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Naphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloroaniline	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorobutadiene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloro-3-methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylnaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorocyclopentadiene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,6-Trichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,5-Trichlorophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
2-Chloronaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Dimethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acenaphthylene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,6-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
3-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Acenaphthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
4-Nitrophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Dibenzofuran	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Diethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chlorophenyl-phenylether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Fluorene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
4,6-Dinitro-2-methylphenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
N-Nitrosodiphenylamine (1)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Bromophenyl-phenylether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Pentachlorophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Phenanthrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Anthracene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Carbazole	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Di-n-butylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

03/08/95 NAS WHITING - SITE 1466 - UST 11:13:13
 ANALYTICAL REPORT

Lab Sample Number:	90127006			90101002			90127005			90127004		
Site	WHITING			WHITING		<th>WHITING</th> <td></td> <td><th>WHITING</th><td></td><td></td></td>	WHITING		<th>WHITING</th> <td></td> <td></td>	WHITING		
Locator	WHF14661			WHF146613			WHF146615			WHF146616		
Collect Date:	28-AUG-93			19-AUG-93			28-AUG-93			28-AUG-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Fluoranthene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Pyrene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Butylbenzylphthalate	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
3,3-Dichlorobenzidine	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Benzo (a) anthracene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Chrysene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
bis(2-Ethylhexyl) phthalate	2 J	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Di-n-octylphthalate	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Benzo (b) fluoranthene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Benzo (k) fluoranthene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Benzo (a) pyrene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Indeno (1,2,3-cd) pyrene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Dibenz (a,h) anthracene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10
Benzo (g,h,i) perylene	10 U	ug/l		10	10 U	ug/l		10	10 U	ug/l		10

Qualifiers: U = NOT DETECTED, J = ESTIMATED VALUE, UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED, R = RESULT IS REJECTED AND UNUSABLE

03/08/95 NAS WHITING - SITE 1466 - UST 11:13:13
ANALYTICAL REPORT

Lab Sample Number:	90128001			90121002			90098003			90098005						
Site	WHITING			WHITING			WHITING			WHITING						
Locator	WHF146617			WHF146618			WHF146619			WHF146619						
Collect Date:	29-AUG-93			26-AUG-93			18-AUG-93			18-AUG-93						
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL				
CLP SEMIVOLATILES 90-SOW	ug/l															
Phenol	10	U	ug/l	10	61	ug/l	10	10	R	ug/l	10	10	R	ug/l	10	
bis(2-Chloroethyl) ether	10	U	ug/l	10	10	U	ug/l	10	10	R	ug/l	10	10	R	ug/l	10
2-Chlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	R	ug/l	10	10	R	ug/l	10
1,3-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,4-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Methylphenol	10	U	ug/l	10	230	R	ug/l	10	10	R	ug/l	10	10	R	ug/l	10
2,2-oxybis(1-Chloropropane)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Methylphenol	10	U	ug/l	10	27	ug/l	10	10	R	ug/l	10	10	R	ug/l	10	
N-Nitroso-di-n-propylamine	10	U	ug/l	10	10	U	ug/l	10	10	R	ug/l	10	10	R	ug/l	10
Hexachloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Nitrobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Isophorone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Nitrophenol	10	U	ug/l	10	10	U	ug/l	10	10	R	ug/l	10	10	R	ug/l	10
2,4-Dimethylphenol	10	U	ug/l	10	54	ug/l	10	10	R	ug/l	10	10	R	ug/l	10	
bis(2-Chloroethoxy) methane	10	U	ug/l	10	10	U	ug/l	10	10	R	ug/l	10	10	R	ug/l	10
2,4-Dichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	R	ug/l	10	10	R	ug/l	10
1,2,4-Trichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Naphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chloroaniline	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobutadiene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chloro-3-methylphenol	10	U	ug/l	10	10	U	ug/l	10	10	R	ug/l	10	10	R	ug/l	10
2-Methylnaphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorocyclopentadiene	10	U	ug/l	10	10	UJ	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4,6-Trichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	R	ug/l	10	10	R	ug/l	10
2,4,5-Trichlorophenol	25	U	ug/l	25	25	U	ug/l	25	25	R	ug/l	25	25	R	ug/l	25
2-Chloronaphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Dimethylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Acenaphthylene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,6-Dinitrotoluene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Acenaphthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrophenol	25	U	ug/l	25	25	U	ug/l	25	25	R	ug/l	25	25	R	ug/l	25
4-Nitrophenol	25	U	ug/l	25	25	U	ug/l	25	25	R	ug/l	25	25	R	ug/l	25
Dibenzofuran	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrotoluene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Diethylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chlorophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	R	ug/l	10	10	R	ug/l	10
Fluorene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10

03/08/95 NAS WHITING - SITE 1466 - UST 11:13:13
ANALYTICAL REPORT

Lab Sample Number:	90128001			90121002			90098003			90098005		
Site	WHITING			WHITING			WHITING		WHITING			
Locator	WHF146617			WHF146618			WHF146619		WHF146619			
Collect Date:	29-AUG-93			26-AUG-93			18-AUG-93		18-AUG-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	25 U	ug/l		25	25 U	ug/l		25	25 U	ug/l		25
4,6-Dinitro-2-methylphenol	25 U	ug/l		25	25 U	ug/l		25	25 R	ug/l		25
N-Nitrosodiphenylamine (1)	10 U	ug/l	10		10 U	ug/l	10		10 R	ug/l	10	
4-Bromophenyl-phenylether	10 U	ug/l	10		10 U	ug/l	10		10 R	ug/l	10	
Hexachlorobenzene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Pentachlorophenol	25 U	ug/l	25		25 U	ug/l	25		25 R	ug/l	25	
Phenanthrene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Anthracene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Carbazole	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Di-n-butylphthalate	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Fluoranthene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Pyrene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Butylbenzylphthalate	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
3,3-Dichlorobenzidine	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Benzo (a) anthracene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Chrysene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
bis(2-Ethylhexyl) phthalate	10 U	ug/l	10		10 U	ug/l	10		1 J	ug/l	10	
Di-n-octylphthalate	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Benzo (b) fluoranthene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Benzo (k) fluoranthene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Benzo (a) pyrene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Indeno (1,2,3-cd) pyrene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Dibenz (a,h) anthracene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Benzo (g,h,i) perylene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	

Qualifiers: U = NOT DETECTED, J = ESTIMATED VALUE, UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED, R = RESULT IS REJECTED AND UNUSABLE

03/08/95 NAS WHITING - SITE 1466 - UST 11:13:13
ANALYTICAL REPORT

Lab Sample Number:	90101001			90101003			90098004			90121001		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF146620			WHFDUP2			WHF71			WHF14661D		
Collect Date:	19-AUG-93			19-AUG-93			18-AUG-93			26-AUG-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW	ug/l											
Phenol	10	U	ug/l	10	10	U	ug/l	10	53	J	ug/l	100
bis(2-Chloroethyl) ether	10	U	ug/l	10	10	U	ug/l	10	100	U	ug/l	100
2-Chlorophenol	10	U	ug/l	10	10	U	ug/l	10	100	U	ug/l	100
1,3-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	100	U	ug/l	100
1,4-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	100	U	ug/l	100
1,2-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	100	U	ug/l	100
2-Methylphenol	10	U	ug/l	10	10	U	ug/l	10	140	U	ug/l	100
2,2-oxybis(1-Chloropropane)	10	U	ug/l	10	10	U	ug/l	10	100	U	ug/l	100
4-Methylphenol	10	U	ug/l	10	10	U	ug/l	10	150	U	ug/l	100
N-Nitroso-di-n-propylamine	10	U	ug/l	10	10	U	ug/l	10	100	U	ug/l	100
Hexachloroethane	10	U	ug/l	10	10	U	ug/l	10	100	U	ug/l	100
Nitrobenzene	10	U	ug/l	10	10	U	ug/l	10	100	U	ug/l	100
Isophorone	10	U	ug/l	10	10	U	ug/l	10	100	U	ug/l	100
2-Nitrophenol	10	U	ug/l	10	10	U	ug/l	10	100	U	ug/l	100
2,4-Dimethylphenol	10	U	ug/l	10	10	U	ug/l	10	21	J	ug/l	100
bis(2-Chloroethoxy) methane	10	U	ug/l	10	10	U	ug/l	10	100	U	ug/l	100
2,4-Dichlorophenol	10	U	ug/l	10	10	U	ug/l	10	100	U	ug/l	100
1,2,4-Trichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	100	U	ug/l	100
Naphthalene	10	U	ug/l	10	10	U	ug/l	10	100	U	ug/l	100
4-Chloroaniline	10	U	ug/l	10	10	U	ug/l	10	100	U	ug/l	100
Hexachlorobutadiene	10	U	ug/l	10	10	U	ug/l	10	100	U	ug/l	100
4-Chloro-3-methylphenol	10	U	ug/l	10	10	U	ug/l	10	100	U	ug/l	100
2-Methylnaphthalene	10	U	ug/l	10	10	U	ug/l	10	100	U	ug/l	100
Hexachlorocyclopentadiene	10	U	ug/l	10	10	U	ug/l	10	100	U	ug/l	100
2,4,6-Trichlorophenol	10	U	ug/l	10	10	U	ug/l	10	100	U	ug/l	100
2,4,5-Trichlorophenol	25	U	ug/l	25	25	U	ug/l	25	250	U	ug/l	250
2-Chloronaphthalene	10	U	ug/l	10	10	U	ug/l	10	100	U	ug/l	100
2-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25	250	U	ug/l	250
Dimethylphthalate	10	U	ug/l	10	10	U	ug/l	10	100	U	ug/l	100
Acenaphthylene	10	U	ug/l	10	10	U	ug/l	10	100	U	ug/l	100
2,6-Dinitrotoluene	10	U	ug/l	10	10	U	ug/l	10	100	U	ug/l	100
3-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25	250	U	ug/l	250
Acenaphthene	10	U	ug/l	10	10	U	ug/l	10	100	U	ug/l	100
2,4-Dinitrophenol	25	U	ug/l	25	25	U	ug/l	25	250	U	ug/l	250
4-Nitrophenol	25	U	ug/l	25	25	U	ug/l	25	250	U	ug/l	250
Dibenzofuran	10	U	ug/l	10	10	U	ug/l	10	100	U	ug/l	100
2,4-Dinitrotoluene	10	U	ug/l	10	10	U	ug/l	10	100	U	ug/l	100
Diethylphthalate	10	U	ug/l	10	10	U	ug/l	10	100	U	ug/l	100
4-Chlorophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	100	U	ug/l	100
Fluorene	10	U	ug/l	10	10	U	ug/l	10	100	U	ug/l	100

03/08/95 NAS WHITING - SITE 1466 - UST 11:13:13
ANALYTICAL REPORT

Lab Sample Number:	90101001			90101003			90098004			90121001		
Site	WHITING			WHITING			WHITING		WHITING			
Locator	WHF146620			WHDUP2			WHD71		WHD71			
Collect Date:	19-AUG-93			19-AUG-93			18-AUG-93		18-AUG-93			
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
4-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	250 U	ug/l	250	25 U	ug/l	25
4,6-Dinitro-2-methylphenol	25 U	ug/l	25	25 U	ug/l	25	250 U	ug/l	250	25 U	ug/l	25
N-Nitrosodiphenylamine (1)	10 U	ug/l	10	10 U	ug/l	10	100 U	ug/l	100	10 U	ug/l	10
4-Bromophenyl-phenylether	10 U	ug/l	10	10 U	ug/l	10	100 U	ug/l	100	10 U	ug/l	10
Hexachlorobenzene	10 U	ug/l	10	10 U	ug/l	10	100 U	ug/l	100	10 U	ug/l	10
Pentachlorophenol	25 U	ug/l	25	25 U	ug/l	25	250 U	ug/l	250	25 U	ug/l	25
Phenanthrene	10 U	ug/l	10	10 U	ug/l	10	100 U	ug/l	100	10 U	ug/l	10
Anthracene	10 U	ug/l	10	10 U	ug/l	10	100 U	ug/l	100	10 U	ug/l	10
Carbazole	10 U	ug/l	10	10 U	ug/l	10	9 J	ug/l	100	10 U	ug/l	10
Di-n-butylphthalate	10 U	ug/l	10	10 U	ug/l	10	100 U	ug/l	100	10 U	ug/l	10
Fluoranthene	10 U	ug/l	10	10 U	ug/l	10	100 U	ug/l	100	10 U	ug/l	10
Pyrene	10 U	ug/l	10	10 U	ug/l	10	100 U	ug/l	100	10 U	ug/l	10
Butylbenzylphthalate	10 U	ug/l	10	10 U	ug/l	10	100 U	ug/l	100	10 U	ug/l	10
3,3-Dichlorobenzidine	10 U	ug/l	10	10 U	ug/l	10	100 U	ug/l	100	10 U	ug/l	10
Benzo (a) anthracene	10 U	ug/l	10	10 U	ug/l	10	100 U	ug/l	100	10 U	ug/l	10
Chrysene	10 U	ug/l	10	10 U	ug/l	10	100 U	ug/l	100	10 U	ug/l	10
bis(2-Ethylhexyl) phthalate	10 U	ug/l	10	10 U	ug/l	10	100 U	ug/l	100	10 U	ug/l	10
Di-n-octylphthalate	10 U	ug/l	10	10 U	ug/l	10	100 U	ug/l	100	10 U	ug/l	10
Benzo (b) fluoranthene	10 U	ug/l	10	10 U	ug/l	10	100 U	ug/l	100	10 U	ug/l	10
Benzo (k) fluoranthene	10 U	ug/l	10	10 U	ug/l	10	100 U	ug/l	100	10 U	ug/l	10
Benzo (a) pyrene	10 U	ug/l	10	10 U	ug/l	10	100 U	ug/l	100	10 U	ug/l	10
Indeno (1,2,3-cd) pyrene	10 U	ug/l	10	10 U	ug/l	10	100 U	ug/l	100	10 U	ug/l	10
Dibenz (a,h) anthracene	10 U	ug/l	10	10 U	ug/l	10	100 U	ug/l	100	10 U	ug/l	10
Benzo (g,h,i) perylene	10 U	ug/l	10	10 U	ug/l	10	100 U	ug/l	100	10 U	ug/l	10

Qualifiers: U = NOT DETECTED, J = ESTIMATED VALUE, UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED, R = RESULT IS REJECTED AND UNUSABLE

03/08/95 NAS WHITING - SITE 1466 - UST 11:13:13
ANALYTICAL REPORT

Lab Sample Number: 90128002
 Site WHITING
 Locator WHF14663D
 Collect Date: 29-AUG-93

VALUE QUAL UNITS DL

CLP SEMIVOLATILES 90-SOW

	ug/l			
Phenol	10 U	ug/l	10	
bis(2-Chloroethyl) ether	10 U	ug/l	10	
2-Chlorophenol	10 U	ug/l	10	
1,3-Dichlorobenzene	10 U	ug/l	10	
1,4-Dichlorobenzene	10 U	ug/l	10	
1,2-Dichlorobenzene	10 U	ug/l	10	
2-Methylphenol	10 U	ug/l	10	
2,2-oxybis(1-Chloropropane)	10 U	ug/l	10	
4-Methylphenol	10 U	ug/l	10	
N-Nitroso-di-n-propylamine	10 U	ug/l	10	
Hexachloroethane	10 U	ug/l	10	
Nitrobenzene	10 U	ug/l	10	
Isophorone	10 U	ug/l	10	
2-Nitrophenol	10 U	ug/l	10	
2,4-Dimethylphenol	10 U	ug/l	10	
bis(2-Chloroethoxy) methane	10 U	ug/l	10	
2,4-Dichlorophenol	10 U	ug/l	10	
1,2,4-Trichlorobenzene	10 U	ug/l	10	
Naphthalene	10 U	ug/l	10	
4-Chloroaniline	10 U	ug/l	10	
Hexachlorobutadiene	10 U	ug/l	10	
4-Chloro-3-methylphenol	10 U	ug/l	10	
2-Methylnaphthalene	10 U	ug/l	10	
Hexachlorocyclopentadiene	10 U	ug/l	10	
2,4,6-Trichlorophenol	10 U	ug/l	10	
2,4,5-Trichlorophenol	25 U	ug/l	25	
2-Chloronaphthalene	10 U	ug/l	10	
2-Nitroaniline	25 U	ug/l	25	
Dimethylphthalate	10 U	ug/l	10	
Acenaphthylene	10 U	ug/l	10	
2,6-Dinitrotoluene	10 U	ug/l	10	
3-Nitroaniline	25 U	ug/l	25	
Acenaphthene	10 U	ug/l	10	
2,4-Dinitrophenol	25 U	ug/l	25	
4-Nitrophenol	25 U	ug/l	25	
Dibenzofuran	10 U	ug/l	10	
2,4-Dinitrotoluene	10 U	ug/l	10	
Diethylphthalate	10 U	ug/l	10	
4-Chlorophenyl-phenylether	10 U	ug/l	10	
Fluorene	10 U	ug/l	10	

03/08/95 NAS WHITING - SITE 1466 - UST 11:13:13
ANALYTICAL REPORT

Lab Sample Number: 90128002
Site WHITING
Locator WHF14663D
Collect Date: 29-AUG-93

VALUE QUAL UNITS DL

4-Nitroaniline	25	U	ug/l	25
4,6-Dinitro-2-methylphenol	25	U	ug/l	25
N-Nitrosodiphenylamine (1)	10	U	ug/l	10
4-Bromophenyl-phenylether	10	U	ug/l	10
Hexachlorobenzene	10	U	ug/l	10
Pentachlorophenol	25	U	ug/l	25
Phenanthrone	10	U	ug/l	10
Anthracene	10	U	ug/l	10
Carbazole	10	U	ug/l	10
Di-n-butylphthalate	10	U	ug/l	10
Fluoranthene	10	U	ug/l	10
Pyrene	10	U	ug/l	10
Butylbenzylphthalate	10	U	ug/l	10
3,3'-Dichlorobenzidine	10	U	ug/l	10
Benzo (a) anthracene	10	U	ug/l	10
Chrysene	10	U	ug/l	10
bis(2-Ethylhexyl) phthalate	10	U	ug/l	10
Di-n-octylphthalate	10	U	ug/l	10
Benzo (b) fluoranthene	10	U	ug/l	10
Benzo (k) fluoranthene	10	U	ug/l	10
Benzo (a) pyrene	10	U	ug/l	10
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10
Dibenz (a,h) anthracene	10	U	ug/l	10
Benzo (g,h,i) perylene	10	U	ug/l	10

Qualifiers: U = NOT DETECTED, J = ESTIMATED VALUE, UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED, R = RESULT IS REJECTED AND UNUSABLE

03/08/95 NAS WHITING - SITE 1466 - UST 11:25:01
ANALYTICAL REPORT

Lab Sample Number:	90127006			90101002			90127005			90127004		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF14661			WHF146613			WHF146615			WHF146616		
Collect Date:	28-AUG-93			19-AUG-93			28-AUG-93			28-AUG-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW	ug/l											
alpha-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
beta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
delta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
gamma-BHC (Lindane)	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Heptachlor	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Aldrin	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Heptachlor epoxide	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Endosulfan I	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Dieldrin	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDE	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endrin	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endosulfan II	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDD	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endosulfan sulfate	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDT	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Methoxychlor	.5	UJ	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5
Endrin ketone	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endrin aldehyde	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
alpha-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
gamma-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Toxaphene	5	UJ	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Aroclor-1016	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1221	2	UJ	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Aroclor-1232	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1242	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1248	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1254	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1260	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1

Qualifiers: U = NOT DETECTED, J = ESTIMATED VALUE, UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED, R = RESULT IS REJECTED AND UNUSABLE

03/08/95 NAS WHITING - SITE 1466 - UST 11:25:01
ANALYTICAL REPORT

Lab Sample Number:	90128001			90121002			90098003			90098005		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF146617			WHF146618			WHF146619			WHFDUP1		
Collect Date:	29-AUG-93			26-AUG-93			18-AUG-93			18-AUG-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW	ug/l											
alpha-BHC	.05	U	ug/l	.05	.1	UJ	ug/l	.1	.05	U	ug/l	.05
beta-BHC	.05	U	ug/l	.05	.1	UJ	ug/l	.1	.05	U	ug/l	.05
delta-BHC	.05	U	ug/l	.05	.1	UJ	ug/l	.1	.05	U	ug/l	.05
gamma-BHC (Lindane)	.05	U	ug/l	.05	.1	UJ	ug/l	.1	.05	U	ug/l	.05
Heptachlor	.05	U	ug/l	.05	.1	UJ	ug/l	.1	.05	U	ug/l	.05
Aldrin	.05	U	ug/l	.05	.1	UJ	ug/l	.1	.05	U	ug/l	.05
Heptachlor epoxide	.05	U	ug/l	.05	.1	UJ	ug/l	.1	.05	U	ug/l	.05
Endosulfan I	.05	U	ug/l	.05	.1	UJ	ug/l	.1	.05	U	ug/l	.05
Dieldrin	.1	U	ug/l	.1	.2	UJ	ug/l	.2	.1	U	ug/l	.1
4,4-DDE	.1	U	ug/l	.1	.2	UJ	ug/l	.2	.1	U	ug/l	.1
Endrin	.1	U	ug/l	.1	.2	UJ	ug/l	.2	.1	U	ug/l	.1
Endosulfan II	.1	U	ug/l	.1	.2	UJ	ug/l	.2	.1	U	ug/l	.1
4,4-DDD	.1	U	ug/l	.1	.2	UJ	ug/l	.2	.1	U	ug/l	.1
Endosulfan sulfate	.1	U	ug/l	.1	.2	UJ	ug/l	.2	.1	U	ug/l	.1
4,4-DDT	.1	U	ug/l	.1	.2	UJ	ug/l	.2	.1	U	ug/l	.1
Methoxychlor	.5	U	ug/l	.5	1	UJ	ug/l	1	.5	U	ug/l	.5
Endrin ketone	.1	U	ug/l	.1	.2	UJ	ug/l	.2	.1	U	ug/l	.1
Endrin aldehyde	.1	U	ug/l	.1	.2	UJ	ug/l	.2	.1	U	ug/l	.1
alpha-Chlordane	.05	U	ug/l	.05	.1	UJ	ug/l	.1	.05	U	ug/l	.05
gamma-Chlordane	.05	U	ug/l	.05	.1	UJ	ug/l	.1	.05	U	ug/l	.05
Toxaphene	5	U	ug/l	5	10	UJ	ug/l	10	5	U	ug/l	5
Aroclor-1016	1	U	ug/l	1	2	UJ	ug/l	2	1	U	ug/l	1
Aroclor-1221	2	U	ug/l	2	4	UJ	ug/l	4	2	U	ug/l	2
Aroclor-1232	1	U	ug/l	1	2	UJ	ug/l	2	1	U	ug/l	1
Aroclor-1242	1	U	ug/l	1	2	UJ	ug/l	2	1	U	ug/l	1
Aroclor-1248	1	U	ug/l	1	2	UJ	ug/l	2	1	U	ug/l	1
Aroclor-1254	1	U	ug/l	1	2	UJ	ug/l	2	1	U	ug/l	1
Aroclor-1260	1	U	ug/l	1	2	UJ	ug/l	2	1	U	ug/l	1

Qualifiers: U = NOT DETECTED, J = ESTIMATED VALUE, UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED, R = RESULT IS REJECTED AND UNUSABLE

03/08/95 NAS WHITING - SITE 1466 - UST 11:25:01
ANALYTICAL REPORT

Lab Sample Number:	90101001			90101003			90098004			90121001		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF146620			WHF146620			WHF71			WHF14661D		
Collect Date:	19-AUG-93			19-AUG-93			18-AUG-93			26-AUG-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW	ug/l											
alpha-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
beta-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
delta-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
gamma-BHC (Lindane)	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Aldrin	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor epoxide	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Endosulfan I	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Dieldrin	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDE	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Endrin	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan II	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDD	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan sulfate	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDT	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Methoxychlor	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	UJ	ug/l	.5
Endrin ketone	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Endrin aldehyde	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
alpha-Chlordane	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
gamma-Chlordane	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Toxaphene	5	U	ug/l	5	5	U	ug/l	5	5	UJ	ug/l	5
Aroclor-1016	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1221	2	U	ug/l	2	2	U	ug/l	2	2	UJ	ug/l	2
Aroclor-1232	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1262	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1248	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1254	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1260	1	U	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1

Qualifiers: U = NOT DETECTED, J = ESTIMATED VALUE, UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED, R = RESULT IS REJECTED AND UNUSABLE

03/08/95 NAS WHITING - SITE 1466 - UST 11:25:01
 ANALYTICAL REPORT

Lab Sample Number:	90128002
Site	WHITING
Locator	WHF14663D
Collect Date:	29-AUG-93

VALUE	QUAL UNITS	DL
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CLP PESTICIDES/PCBS 90-SOW	ug/l			
alpha-BHC	.05	U	ug/l	.05
beta-BHC	.05	U	ug/l	.05
delta-BHC	.05	U	ug/l	.05
gamma-BHC (Lindane)	.05	U	ug/l	.05
Heptachlor	.05	U	ug/l	.05
Aldrin	.05	U	ug/l	.05
Heptachlor epoxide	.05	U	ug/l	.05
Endosulfan I	.05	U	ug/l	.05
Dieldrin	.1	U	ug/l	.1
4,4-DDE	.1	U	ug/l	.1
Endrin	.1	U	ug/l	.1
Endosulfan II	.1	U	ug/l	.1
4,4-DDD	.1	U	ug/l	.1
Endosulfan sulfate	.1	U	ug/l	.1
4,4-DDT	.1	U	ug/l	.1
Methoxychlor	.5	U	ug/l	.5
Endrin ketone	.1	U	ug/l	.1
Endrin aldehyde	.1	U	ug/l	.1
alpha-Chlordane	.05	U	ug/l	.05
gamma-Chlordane	.05	U	ug/l	.05
Toxaphene	5	U	ug/l	5
Aroclor-1016	1	U	ug/l	1
Aroclor-1221	2	U	ug/l	2
Aroclor-1232	1	U	ug/l	1
Aroclor-1242	1	U	ug/l	1
Aroclor-1248	1	U	ug/l	1
Aroclor-1254	1	U	ug/l	1
Aroclor-1260	1	U	ug/l	1

Qualifiers: U = NOT DETECTED, J = ESTIMATED VALUE, UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED, R = RESULT IS REJECTED AND UNUSABLE

03/08/95 NAS WHITING - SITE 1466 - UST 11:29:55
ANALYTICAL REPORT

Lab Sample Number:	90127006			90101002			90127005			90127004		
Site	WHITING			WHITING		<th>WHITING</th> <td></td> <td><th>WHITING</th><td></td><td></td></td>	WHITING		<th>WHITING</th> <td></td> <td></td>	WHITING		
Locator	WHF14661			WHF146613			WHF146615			WHF146616		
Collect Date:	28-AUG-93			19-AUG-93			28-AUG-93			28-AUG-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE	ug/l											
Aluminum	1130	J	ug/l	200	1240	J	ug/l	200	3980	J	ug/l	200
Antimony	15.6	J	ug/l	60	12.6	J	ug/l	60	11.7	U	ug/l	60
Arsenic	9.9	J	ug/l	10	1.4	UJ	ug/l	10	1.4	UJ	ug/l	10
Barium	48.6	J	ug/l	200	.37	J	ug/l	200	82.6	J	ug/l	200
Beryllium	.15	U	ug/l	5	.18	U	ug/l	5	.39	J	ug/l	5
Cadmium	2.9	U	ug/l	5	22.3	ug/l	5	5.9	ug/l	5	2.9	U
Calcium	1350	J	ug/l	5000	1580	J	ug/l	5000	26900	ug/l	5000	3800
Chromium	2.3	U	ug/l	10	7.8	U	ug/l	10	8.5	J	ug/l	10
Cobalt	1.9	U	ug/l	50	6.8	J	ug/l	50	1.9	UJ	ug/l	50
Copper	9.1	J	ug/l	25	10	U	ug/l	25	13.2	J	ug/l	25
Iron	42500	J	ug/l	100	2450	ug/l	100	3420	ug/l	100	9320	ug/l
Lead	6.9	ug/l	5		9.4	ug/l	5	5.6	ug/l	5	4.5	ug/l
Magnesium	1600	J	ug/l	5000	891	J	ug/l	5000	1190	J	ug/l	5000
Manganese	678	ug/l	15		15.7	ug/l	15	16.2	ug/l	15	9.5	ug/l
Mercury	.08	J	ug/l	.2	.04	U	ug/l	.2	.05	J	ug/l	.2
Nickel	8.7	U	ug/l	40	8.7	U	ug/l	40	8.7	U	ug/l	40
Potassium	788	U	ug/l	5000	2450	J	ug/l	5000	1910	J	ug/l	5000
Selenium	2.1	U	ug/l	5	2.1	U	ug/l	5	2.1	UJ	ug/l	5
Silver	1.6	U	ug/l	10	1.6	U	ug/l	10	1.6	U	ug/l	10
Sodium	3850	J	ug/l	5000	4450	J	ug/l	5000	3480	J	ug/l	5000
Thallium	1	U	ug/l	10	1	U	ug/l	10	1	UJ	ug/l	10
Vanadium	1.9	U	ug/l	50	10.6	J	ug/l	50	9.1	J	ug/l	50
Zinc	45	ug/l	20		95.5	ug/l	20	46.8	ug/l	20	56.6	ug/l
Cyanide	-	ug/l	-		-	ug/l	-	-	ug/l	-	ug/l	-

Qualifiers: U = NOT DETECTED, J = ESTIMATED VALUE, UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED, R = RESULT IS REJECTED AND UNUSABLE

03/08/95 NAS WHITING - SITE 1466 - UST 11:29:55
ANALYTICAL REPORT

Lab Sample Number:	90128001			90121002			90098003			90098005		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF146617			WHF146618			WHF146619			WHF146619		
Collect Date:	29-AUG-93			26-AUG-93			18-AUG-93			18-AUG-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE	ug/l											
Aluminum	1780	ug/l	200		7370 J	ug/l	200		2500	ug/l	200	
Antimony	11.7 U	ug/l	60		11.7 U	ug/l	60		11.7 U	ug/l	60	
Arsenic	20.3	ug/l	10		6.7 J	ug/l	10		1.4 UJ	ug/l	10	
Barium	61.6 J	ug/l	200		50.7 J	ug/l	200		55.4 J	ug/l	200	
Beryllium	.15 U	ug/l	5		.25 J	ug/l	5		.15 U	ug/l	5	
Cadmium	3.6 J	ug/l	5		2.9 U	ug/l	5		.32	ug/l	5	
Calcium	29600	ug/l	5000		10400	ug/l	5000		8530	ug/l	5000	
Chromium	2.3 U	ug/l	10		26.5	ug/l	10		13.8	ug/l	10	
Cobalt	1.9 U	ug/l	50		1.9 UJ	ug/l	50		7.9 J	ug/l	50	
Copper	17.8 J	ug/l	25		29.9	ug/l	25		15 J	ug/l	25	
Iron	7660	ug/l	100		21700	ug/l	100		9050	ug/l	100	
Lead	1.8 J	ug/l	5		20.4	ug/l	5		4.9	ug/l	5	
Magnesium	974 J	ug/l	5000		2550 J	ug/l	5000		1240 J	ug/l	5000	
Manganese	21	ug/l	15		210	ug/l	15		53.2	ug/l	15	
Mercury	.13 U	ug/l	.2		.1 J	ug/l	.2		.15 J	ug/l	.2	
Nickel	8.7 U	ug/l	40		13.3 J	ug/l	40		9.4 J	ug/l	40	
Potassium	4000 J	ug/l	5000		3060 J	ug/l	5000		2530 J	ug/l	5000	
Selenium	2.1 U	ug/l	5		2.1 UJ	ug/l	5		2.1 U	ug/l	5	
Silver	1.6 U	ug/l	10		1.6 U	ug/l	10		1.9 U	ug/l	10	
Sodium	6250	ug/l	5000		7660	ug/l	5000		5650	ug/l	5000	
Thallium	1 UJ	ug/l	10		1 UJ	ug/l	10		1 U	ug/l	10	
Vanadium	4.4 J	ug/l	50		36.4 J	ug/l	50		35.1 J	ug/l	50	
Zinc	28.3 J	ug/l	20		186	ug/l	20		74.6	ug/l	20	
Cyanide	-	ug/l	-		-	ug/l	-		-	ug/l	-	

Qualifiers: U = NOT DETECTED, J = ESTIMATED VALUE, UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED, R = RESULT IS REJECTED AND UNUSABLE

03/08/95 NAS WHITING - SITE 1466 - UST 11:29:55
ANALYTICAL REPORT

Lab Sample Number:	90101001			90101003			90098004			90121001						
Site	WHITING			WHITING		<th>WHITING</th> <td></td> <td><th>WHITING</th><td></td><td></td></td>	WHITING		<th>WHITING</th> <td></td> <td></td>	WHITING						
Locator	WHF146620			WHFDUP2		<th>WHF71</th> <td></td> <td><th>WHF14661D</th><td></td><td></td></td>	WHF71		<th>WHF14661D</th> <td></td> <td></td>	WHF14661D						
Collect Date:	19-AUG-93			19-AUG-93		<th>18-AUG-93</th> <td></td> <td><th>26-AUG-93</th><td></td><td></td></td>	18-AUG-93		<th>26-AUG-93</th> <td></td> <td></td>	26-AUG-93						
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL				
CLP METALS AND CYANIDE ug/l																
Aluminum	583	ug/l	200	1320	ug/l	200	139	U	200	2100	J	ug/l	200			
Antimony	11.7	U	ug/l	60	15.7	J	ug/l	60	11.7	U	ug/l	60				
Arsenic	1.4	UJ	ug/l	10	1.4	UJ	ug/l	10	29.3	ug/l	10	1.4	UJ	ug/l	10	
Barium	37.3	J	ug/l	200	36.2	J	ug/l	200	112	J	ug/l	200	27.4	J	ug/l	200
Beryllium	.15	U	ug/l	5	.17	U	ug/l	5	.15	U	ug/l	5	.15	U	ug/l	5
Cadmium	12.5	ug/l	5	10.4	ug/l	5	8	ug/l	5	2.9	U	ug/l	5			
Calcium	3460	J	ug/l	5000	3580	J	ug/l	5000	27400	ug/l	5000	18700	ug/l	5000		
Chromium	3.2	U	ug/l	10	8	U	ug/l	10	8.3	U	ug/l	10	9.4	J	ug/l	10
Cobalt	5.8	J	ug/l	50	7.9	J	ug/l	50	39.2	J	ug/l	50	1.9	UJ	ug/l	50
Copper	1.4	U	ug/l	25	6.2	U	ug/l	25	7.8	U	ug/l	25	19.6	J	ug/l	25
Iron	4720	ug/l	100	6470	ug/l	100	61200	ug/l	100	3970	ug/l	100				
Lead	2.9	J	ug/l	5	2.9	J	ug/l	5	1290	ug/l	5	5.2	ug/l	5		
Magnesium	1200	J	ug/l	5000	1150	J	ug/l	5000	7010	ug/l	5000	978	J	ug/l	5000	
Manganese	29.6	ug/l	15	28.8	ug/l	15	725	ug/l	15	22.3	ug/l	15				
Mercury	.04	U	ug/l	.2	.04	U	ug/l	.2	.05	J	ug/l	.2	.04	U	ug/l	.2
Nickel	8.7	U	ug/l	40	8.7	U	ug/l	40	19.6	J	ug/l	40	11.7	J	ug/l	40
Potassium	1320	J	ug/l	5000	1400	J	ug/l	5000	1820	J	ug/l	5000	6320	ug/l	5000	
Selenium	2.1	U	ug/l	5	2.1	U	ug/l	5	2.1	J	ug/l	5	2.1	UJ	ug/l	5
Silver	1.6	U	ug/l	10	1.6	U	ug/l	10	1.6	U	ug/l	10	1.6	U	ug/l	10
Sodium	5620	ug/l	5000	5320	ug/l	5000	4060	J	5000	3710	J	ug/l	5000			
Thallium	.1	U	ug/l	10	1	U	ug/l	10	1	U	ug/l	10	1	UJ	ug/l	10
Vanadium	6.4	J	ug/l	50	17	J	ug/l	50	1.9	U	ug/l	50	11.2	J	ug/l	50
Zinc	128	ug/l	20	124	ug/l	20	63.4	ug/l	20	113	ug/l	20				
Cyanide	-	ug/l	-	ug/l	-	ug/l	-	ug/l	-	-	ug/l	-				

Qualifiers: U = NOT DETECTED, J = ESTIMATED VALUE, UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED, R = RESULT IS REJECTED AND UNUSABLE

03/08/95 NAS WHITING - SITE 1466 - UST 11:29:55
ANALYTICAL REPORT

Lab Sample Number: 90128002
Site WHITING
Locator WHF14663D
Collect Date: 29-AUG-93

VALUE QUAL UNITS DL

CLP METALS AND CYANIDE ug/l

Aluminum	2910	ug/l	200
Antimony	11.7 U	ug/l	60
Arsenic	1.4 U	ug/l	10
Barium	43 J	ug/l	200
Beryllium	.15 U	ug/l	5
Cadmium	4.6 J	ug/l	5
Calcium	13100	ug/l	5000
Chromium	20.6	ug/l	10
Cobalt	2 J	ug/l	50
Copper	18.4 J	ug/l	25
Iron	3800	ug/l	100
Lead	9.5	ug/l	5
Magnesium	450 J	ug/l	5000
Manganese	10.4 J	ug/l	15
Mercury	.12 U	ug/l	2
Nickel	11.9 J	ug/l	40
Potassium	84800	ug/l	5000
Selenium	2.1 U	ug/l	5
Silver	1.6 U	ug/l	10
Sodium	10000	ug/l	5000
Thallium	1 UJ	ug/l	10
Vanadium	26.7 J	ug/l	50
Zinc	50.8 J	ug/l	20
Cyanide	.	ug/l	

Qualifiers: U = NOT DETECTED, J = ESTIMATED VALUE, UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED, R = RESULT IS REJECTED AND UNUSABLE

03/08/95 WAS WHITING - SITE 1467 - UST 10:41:34
ANALYTICAL REPORT

Lab Sample Number:	90128010			90125006			90128003			90121004			
Site	WHITING			WHITING			WHITING			WHITING			
Locator	WHF14672			WHF146720			WHF146721			WHF146723			
Collect Date:	29-AUG-93			27-AUG-93			29-AUG-93			26-AUG-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	DL	VALUE	QUAL UNITS	DL
CLP SEMIVOLATILES 90-SOW	ug/l												
Phenol	10	U	ug/l	10	5	J	ug/l	10	10	U	ug/l	10	10
bis(2-Chloroethyl) ether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10
2-Chlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10
1,3-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10
1,4-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10
1,2-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10
2-Methylphenol	10	U	ug/l	10	2	J	ug/l	10	10	U	ug/l	10	10
2,2-oxybis(1-Chloropropane)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10
4-Methylphenol	10	U	ug/l	10	2	J	ug/l	10	10	U	ug/l	10	10
N-Nitroso-di-n-propylamine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10
Hexachloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10
Nitrobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10
Isophorone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10
2-Nitrophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10
2,4-Dimethylphenol	10	U	ug/l	10	5	J	ug/l	10	10	U	ug/l	10	10
bis(2-Chloroethoxy) methane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10
2,4-Dichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10
1,2,4-Trichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10
Naphthalene	10	U	ug/l	10	3	J	ug/l	10	10	U	ug/l	10	10
4-Chloroaniline	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10
Hexachlorobutadiene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10
4-Chloro-3-methylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10
2-Methylnaphthalene	10	U	ug/l	10	1	J	ug/l	10	10	U	ug/l	10	10
Hexachlorocyclopentadiene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10
2,4,6-Trichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10
2,4,5-Trichlorophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25
2-Chloronaphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10
2-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25
Dimethylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10
Acenaphthylene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10
2,6-Dinitrotoluene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10
3-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25
Acenaphthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10
2,4-Dinitrophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25
4-Nitrophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25
Dibenzofuran	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10
2,4-Dinitrotoluene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10
Diethylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10
4-Chlorophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10
Fluorene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10
4-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25
4,6-Dinitro-2-methylphenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25
N-Nitrosodiphenylamine (1)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10
4-Bromophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10
Hexachlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10
Pentachlorophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25
Phenanthrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10
Anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10
Carbazole	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10
Di-n-butylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10

03/08/95 NAS WHITING - SITE 1467 - UST 10:41:34
ANALYTICAL REPORT

Lab Sample Number:	90128010			90125006			90128003			90121004		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF14672			WHF146720			WHF146721			WHF146723		
Collect Date:	29-AUG-93			27-AUG-93			29-AUG-93			26-AUG-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Butylbenzylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3,3-Dichlorobenzidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chrysene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Ethylhexyl) phthalate	10	U	ug/l	10	32	ug/l	10	10	U	ug/l	10	10
Di-n-octylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (b) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (k) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dibenz (a,h) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (g,h,i) perylene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10

Qualifiers: U = NOT DETECTED, J = ESTIMATED VALUE, UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED, R * RESULT IS REJECTED AND UNUSABLE

03/08/95 NAS WHITING - SITE 1467 - UST 10:41:34

ANALYTICAL REPORT

Lab Sample Number:	90128008			90125002			90128006			90127002		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF146724			WHF146725			WHF146726			WHF146727		
Collect Date:	29-AUG-93			27-AUG-93			29-AUG-93			28-AUG-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW	ug/l											
Phenol	9 J	ug/l	10		1 J	ug/l	10		26	ug/l	10	
bis(2-Chloroethyl) ether	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
2-Chlorophenol	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
1,3-Dichlorobenzene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
1,4-Dichlorobenzene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
1,2-Dichlorobenzene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
2-Methylphenol	13	ug/l	10		1 J	ug/l	10		46	ug/l	10	
2,2-oxybis(1-Chloropropane)	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
4-Methylphenol	16	ug/l	10		10 U	ug/l	10		45	ug/l	10	
N-Nitroso-di-n-propylamine	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Hexachloroethane	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Nitrobenzene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Isophorone	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
2-Nitrophenol	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
2,4-Dimethylphenol	6 J	ug/l	10		10 U	ug/l	10		2 J	ug/l	10	
bis(2-Chloroethoxy) methane	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
2,4-Dichlorophenol	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
1,2,4-Trichlorobenzene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Naphthalene	6 J	ug/l	10		10 U	ug/l	10		6 J	ug/l	10	
4-Chloroaniline	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Hexachlorobutadiene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
4-Chloro-3-methylphenol	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
2-Methylnaphthalene	4 J	ug/l	10		10 U	ug/l	10		2 J	ug/l	10	
Hexachlorocyclopentadiene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
2,4,6-Trichlorophenol	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
2,4,5-Trichlorophenol	25 U	ug/l	25		25 U	ug/l	25		25 U	ug/l	25	
2-Chloronaphthalene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
2-Nitroaniline	25 U	ug/l	25		25 U	ug/l	25		25 U	ug/l	25	
Dimethylphthalate	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Acenaphthylene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
2,6-Dinitrotoluene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
3-Nitroaniline	25 U	ug/l	25		25 U	ug/l	25		25 U	ug/l	25	
Acenaphthene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
2,4-Dinitrophenol	25 U	ug/l	25		25 U	ug/l	25		25 U	ug/l	25	
4-Nitrophenol	25 U	ug/l	25		25 U	ug/l	25		25 U	ug/l	25	
Dibenzofuran	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
2,4-Dinitrotoluene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Diethylphthalate	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
4-Chlorophenyl-phenylether	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	
Fluorene	10 U	ug/l	10		10 U	ug/l	10		10 U	ug/l	10	

03/08/95 NAS WHITING - SITE 1467 - UST 10:41:34
ANALYTICAL REPORT

Lab Sample Number:	90128008			90125002			90128006			90127002		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF146724			WHF146725			WHF146726			WHF146727		
Collect Date:	29-AUG-93			27-AUG-93			29-AUG-93			28-AUG-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
4,6-Dinitro-2-methylphenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
N-Nitrosodiphenylamine (1)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Bromophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pentachlorophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Phenanthrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Carbazole	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Di-n-butylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Butylbenzylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3,3-Dichlorobenzidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chrysene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Ethylhexyl) phthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Di-n-octylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (b) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (k) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dibenz (a,h) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (g,h,i) perylene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10

Qualifiers: U = NOT DETECTED, J = ESTIMATED VALUE, UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED, R = RESULT IS REJECTED AND UNUSABLE

03/08/95 NAS WHITING - SITE 1467 - UST 10:41:34
ANALYTICAL REPORT

Lab Sample Number:	90127007	Site Locator:	WHITING	WHF146728	90128009	Site Locator:	WHITING	WHF146729	90125003	Site Locator:	WHITING	WHF146731	90127003		
Collect Date:	28-AUG-93	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL		
CLP SEMIVOLATILES 90-SOW ug/l															
Phenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroethyl) ether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Chlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,3-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,4-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,2-oxybis(1-Chloropropane)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
N-Nitroso-di-n-propylamine	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Nitrobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Isophorone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitrophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dimethylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroethoxy) methane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2,4-Trichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Naphthalene	6 J	ug/l	10	10 U	ug/l	10	1 J	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloroaniline	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorobutadiene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloro-3-methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylnaphthalene	1 J	ug/l	10	2 J	ug/l	10	1 J	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorocyclopentadiene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,6-Trichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,5-Trichlorophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
2-Chloronaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Dimethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acenaphthylene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,6-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
3-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Acenaphthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
4-Nitrophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Dibenzofuran	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Diethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chlorophenyl-phenylether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Fluorene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

03/08/95 NAS WHITING - SITE 1467 - UST 10:41:34
ANALYTICAL REPORT

Lab Sample Number:	90127007			90128009			90125003			90127003		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHFDUP3			WHF146728			WHF146729			WHF146731		
Collect Date:	28-AUG-93			29-AUG-93			27-AUG-93			28-AUG-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
4,6-Dinitro-2-methylphenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
N-Nitrosodiphenylamine (1)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Bromophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pentachlorophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Phenanthrene	10	U	ug/l	10	1	J	ug/l	10	10	U	ug/l	10
Anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Carbazole	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Di-n-butylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Butylbenzylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3,3-Dichlorobenzidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chrysene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Ethylhexyl) phthalate	10	U	ug/l	10	150	R	ug/l	10	1	J	ug/l	10
Di-n-octylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (b) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (k) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dibenz (a,h) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (g,h,i) perylene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10

Qualifiers: U = NOT DETECTED, J = ESTIMATED VALUE, R = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED, R = RESULT IS REJECTED AND UNUSABLE

03/08/95 NAS WHITING - SITE 1467 - UST 10:41:34
 ANALYTICAL REPORT

Lab Sample Number:	90128005			90127001			90128004			90125004		
Site	WHITING			WHITING		<th>WHITING</th> <td></td> <td><th>WHITING</th><td></td><td></td></td>	WHITING		<th>WHITING</th> <td></td> <td></td>	WHITING		
Locator	WHF146732			WHF146733		<th>WHF14672D</th> <td></td> <td><th>WHF14675D</th><td></td><td></td></td>	WHF14672D		<th>WHF14675D</th> <td></td> <td></td>	WHF14675D		
Collect Date:	29-AUG-93			28-AUG-93		<th>29-AUG-93</th> <td></td> <td><th>27-AUG-93</th><td></td><td></td></td>	29-AUG-93		<th>27-AUG-93</th> <td></td> <td></td>	27-AUG-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW	ug/l											
Phenol	1 J	ug/l	10	22	ug/l	10	43	ug/l	10	10 U	ug/l	10
bis(2-Chloroethyl) ether	10 U	ug/l	10	18	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Chlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,3-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,4-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylphenol	4 J	ug/l	10	17	ug/l	10	18	ug/l	10	10 U	ug/l	10
2,2'-oxybis(1-Chloropropane)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methylphenol	5 J	ug/l	10	6 J	ug/l	10	58	ug/l	10	10 U	ug/l	10
N-Nitroso-di-n-propylamine	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Nitrobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Isophorone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitrophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dimethylphenol	2 J	ug/l	10	6 J	ug/l	10	1 J	ug/l	10	10 U	ug/l	10
bis(2-Chloroethoxy) methane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2,4-Trichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Naphthalene	3 J	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloroaniline	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorobutadiene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloro-3-methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylnaphthalene	3 J	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorocyclopentadiene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,6-Trichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,5-Trichlorophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
2-Choronaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Dimethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acenaphthylene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,6-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
3-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Acenaphthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
4-Nitrophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Dibenzofuran	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Diethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chlorophenyl-phenylether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Fluorene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

03/08/95 NAS WHITING - SITE 1467 - UST 10:41:34
 ANALYTICAL REPORT

Lab Sample Number:	90128005			90127001			90128004			90125004		
Site Locator	WHITING			WHITING			WHITING			WHITING		
Collect Date:	29-AUG-93			28-AUG-93			29-AUG-93			27-AUG-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
4,6-Dinitro-2-methylphenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
N-Nitrosodiphenylamine (1)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Bromophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pentachlorophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Phenanthrene	2	J	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Carbazole	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Di-n-butylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Fluoranthene	1	J	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Butylbenzylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3,3-Dichlorobenzidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chrysene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Ethylhexyl) phthalate	10	U	ug/l	10	2	J	ug/l	10	10	U	ug/l	10
Di-n-octylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (b) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (k) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dibenz (a,h) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (g,h,i) perylene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10

Qualifiers: U = NOT DETECTED, J = ESTIMATED VALUE, UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED, R = RESULT IS REJECTED AND UNUSABLE

03/08/95 NAS WHITING - SITE 1467 - UST 10:41:34
 ANALYTICAL REPORT

Lab Sample Number:	90125005	90128007
Site	WHITING	WHITING
Locator	WHF14676D	WHF14677D
Collect Date:	27-AUG-93	29-AUG-93

	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
CLP SEMIVOLATILES 90-SOW	ug/l					
Phenol	23	ug/l	10	10	ug/l	10
bis(2-Chloroethyl) ether	10	U	10	10	ug/l	10
2-Chlorophenol	10	U	10	10	ug/l	10
1,3-Dichlorobenzene	10	U	10	10	ug/l	10
1,4-Dichlorobenzene	10	U	10	10	ug/l	10
1,2-Dichlorobenzene	10	U	10	10	ug/l	10
2-Methylphenol	44	ug/l	10	10	ug/l	10
2,2-oxybis(1-Chloropropane)	10	U	10	10	ug/l	10
4-Methylphenol	57	ug/l	10	10	ug/l	10
N-Nitroso-di-n-propylamine	10	U	10	10	ug/l	10
Hexachloroethane	10	U	10	10	ug/l	10
Nitrobenzene	10	U	10	10	ug/l	10
Isophorone	10	U	10	10	ug/l	10
2-Nitrophenol	10	U	10	10	ug/l	10
2,4-Dimethylphenol	10	U	10	10	ug/l	10
bis(2-Chloroethoxy) methane	10	U	10	10	ug/l	10
2,4-Dichlorophenol	10	U	10	10	ug/l	10
1,2,4-Trichlorobenzene	10	U	10	10	ug/l	10
Naphthalene	10	U	10	10	ug/l	10
4-Chloroaniline	10	U	10	10	ug/l	10
Hexachlorobutadiene	10	U	10	10	ug/l	10
4-Chloro-3-methylphenol	10	U	10	10	ug/l	10
2-Methylnaphthalene	2	J	ug/l	10	10	ug/l
Hexachlorocyclopentadiene	10	U	10	10	ug/l	10
2,4,6-Trichlorophenol	10	U	10	10	ug/l	10
2,4,5-Trichlorophenol	25	U	ug/l	25	25	ug/l
2-Chloronaphthalene	10	U	10	10	ug/l	10
2-Nitroaniline	25	U	ug/l	25	25	ug/l
Dimethylphthalate	10	U	10	10	ug/l	10
Acenaphthylene	10	U	10	10	ug/l	10
2,6-Dinitrotoluene	10	U	10	10	ug/l	10
3-Nitroaniline	25	U	ug/l	25	25	ug/l
Acenaphthene	10	U	10	10	ug/l	10
2,4-Dinitrophenol	25	U	ug/l	25	25	ug/l
4-Nitrophenol	25	U	ug/l	25	25	ug/l
Dibenzofuran	10	U	10	10	ug/l	10
2,4-Dinitrotoluene	10	U	10	10	ug/l	10
Diethylphthalate	10	U	10	10	ug/l	10
4-Chlorophenyl-phenylether	10	U	10	10	ug/l	10
Fluorene	10	U	10	10	ug/l	10

03/08/95 NAS WHITING - SITE 1467 - UST 10:41:34
 ANALYTICAL REPORT

Lab Sample Number:	90125005			90128007		
Site Locator	WHITING		WHITING			
Collect Date:	WHF14676D		WHF14677D			
	27-AUG-93		29-AUG-93			
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
4-Nitroaniline	25	U	ug/l	25	U	ug/l
4,6-Dinitro-2-methylphenol	25	U	ug/l	25	U	ug/l
N-Nitrosodiphenylamine (1)	10	U	ug/l	10	U	ug/l
4-Bromophenyl-phenylether	10	U	ug/l	10	U	ug/l
Hexachlorobenzene	10	U	ug/l	10	U	ug/l
Pentachlorophenol	25	U	ug/l	25	U	ug/l
Phenanthrene	10	U	ug/l	10	U	ug/l
Anthracene	10	U	ug/l	10	U	ug/l
Carbazole	4	J	ug/l	10	U	ug/l
Di-n-butylphthalate	10	U	ug/l	10	U	ug/l
Fluoranthene	10	U	ug/l	10	U	ug/l
Pyrene	10	U	ug/l	10	U	ug/l
Butylbenzylphthalate	10	U	ug/l	10	U	ug/l
3,3-Dichlorobenzidine	10	U	ug/l	10	U	ug/l
Benzo (a) anthracene	10	U	ug/l	10	U	ug/l
Chrysene	10	U	ug/l	10	U	ug/l
bis(2-Ethylhexyl) phthalate	2	J	ug/l	10	U	ug/l
Di-n-octylphthalate	10	U	ug/l	10	U	ug/l
Benzo (b) fluoranthene	10	U	ug/l	10	U	ug/l
Benzo (k) fluoranthene	10	U	ug/l	10	U	ug/l
Benzo (a) pyrene	10	U	ug/l	10	U	ug/l
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	U	ug/l
Dibenz (a,h) anthracene	10	U	ug/l	10	U	ug/l
Benzo (g,h,i) perylene	10	U	ug/l	10	U	ug/l

Qualifiers: U = NOT DETECTED, J = ESTIMATED VALUE, UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED, R = RESULT IS REJECTED AND UNUSABLE

03/08/95 NAS WHITING - SITE 1467 - UST 10:35:29
ANALYTICAL REPORT

Lab Sample Number:	90128010			90125006			90128003			90121004		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF14672			WHF146720			WHF146721			WHF146723		
Collect Date:	29-AUG-93			27-AUG-93			29-AUG-93			26-AUG-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW	ug/l											
Chloromethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Bromomethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Vinyl chloride	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chloroethane	10	U	ug/l	10	10	UJ	ug/l	10	10	U	ug/l	10
Methylene chloride	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Acetone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Carbon disulfide	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,1-Dichloroethene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,1-Dichloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2-Dichloroethene (total)	10	U	ug/l	10	80	ug/l	10	10	U	ug/l	10	10
Chloroform	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2-Dichloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Butanone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,1,1-Trichloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Carbon tetrachloride	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Bromodichloromethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2-Dichloropropane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
cis-1,3-Dichloropropene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Trichloroethene	10	U	ug/l	10	200	ug/l	10	14	ug/l	10	10	ug/l
Dibromochloromethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,1,2-Trichloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzene	10	U	ug/l	10	130	ug/l	10	10	U	ug/l	10	1 J
trans-1,3-Dichloropropene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Bromoform	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Methyl-2-pentanone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Hexanone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Tetrachloroethene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Toluene	10	U	ug/l	10	78	ug/l	10	10	U	ug/l	10	6 J
1,1,2,2-Tetrachloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Ethylbenzene	4 J	ug/l	10	110	ug/l	10	10	U	ug/l	10	10	ug/l
Styrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Xylenes (total)	3 J	ug/l	10	340 E	ug/l	10	10	U	ug/l	10	2 J	ug/l

Qualifiers: U = NOT DETECTED, J = ESTIMATED VALUE, UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED, R = RESULT IS REJECTED AND UNUSABLE

03/08/95 NAS WHITING - SITE 1467 - UST 12:56:06
ANALYTICAL REPORT

Lab Sample Number:	90128010			90125006			90128003			90121004		
Site	WHITING			WHITING		<th>WHITING</th> <td></td> <td><th>WHITING</th><td></td><td></td></td>	WHITING		<th>WHITING</th> <td></td> <td></td>	WHITING		
Locator	WHF14672			WHF146720		<th>WHF146721</th> <td></td> <td><th>WHF146723</th><td></td><td></td></td>	WHF146721		<th>WHF146723</th> <td></td> <td></td>	WHF146723		
Collect Date:	29-AUG-93			27-AUG-93		<th>29-AUG-93</th> <td></td> <td><th>26-AUG-93</th><td></td><td></td></td>	29-AUG-93		<th>26-AUG-93</th> <td></td> <td></td>	26-AUG-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW	ug/l											
alpha-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
beta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
delta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
gamma-BHC (Lindane)	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Heptachlor	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Aldrin	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Heptachlor epoxide	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Endosulfan I	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Dieldrin	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDE	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endrin	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endosulfan II	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDD	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endosulfan sulfate	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDT	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Methoxychlor	.5	UJ	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5
Endrin ketone	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endrin aldehyde	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
alpha-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
gamma-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Toxaphene	5	UJ	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Aroclor-1016	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1221	2	UJ	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Aroclor-1232	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1242	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1248	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1254	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1260	1	UJ	ug/l	1	1	U	ug/l	1	1	U	ug/l	1

Qualifiers: U = NOT DETECTED, J = ESTIMATED VALUE, UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED, R = RESULT IS REJECTED AND UNUSABLE

03/08/95 NAS WHITING - SITE 1467 - UST 12:56:06
ANALYTICAL REPORT

Lab Sample Number:	90128008			90125002			90128006			90127002		
Site	WHITING			WHITING	WHITING <th data-kind="ghost"></th> <th data-kind="ghost"></th> <th>WHITING</th> <td data-cs="3" data-kind="parent">WHITING</td> <th data-kind="ghost"></th> <th data-kind="ghost"></th>			WHITING	WHITING			
Locator	WHF146724			WHF146725	WHF146726			WHF146726	WHF146727			
Collect Date:	29-AUG-93			27-AUG-93	29-AUG-93			29-AUG-93	28-AUG-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOM	ug/l											
alpha-BHC	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
beta-BHC	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
delta-BHC	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
gamma-BHC (Lindane)	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Aldrin	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor epoxide	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Endosulfan I	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Dieldrin	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.2	UJ	ug/l	.2
4,4-DDE	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.2	UJ	ug/l	.2
Endrin	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.2	UJ	ug/l	.2
Endosulfan II	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.2	UJ	ug/l	.2
4,4-DDD	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.2	UJ	ug/l	.2
Endosulfan sulfate	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.2	UJ	ug/l	.2
4,4-DDT	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.2	UJ	ug/l	.2
Methoxychlor	.5	UJ	ug/l	.5	.5	UJ	ug/l	.5	1	UJ	ug/l	.5
Endrin ketone	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.2	UJ	ug/l	.2
Endrin aldehyde	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1	.2	UJ	ug/l	.2
alpha-Chlordane	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
gamma-Chlordane	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Toxaphene	5	UJ	ug/l	5	5	UJ	ug/l	5	10	UJ	ug/l	10
Aroclor-1016	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1221	2	UJ	ug/l	2	2	UJ	ug/l	2	2	UJ	ug/l	2
Aroclor-1232	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1242	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1248	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1254	1	UJ	ug/l	1	1	UJ	ug/l	1	2	UJ	ug/l	2
Aroclor-1260	1	UJ	ug/l	1	1	UJ	ug/l	1	2	UJ	ug/l	2

Qualifiers: U = NOT DETECTED, J = ESTIMATED VALUE, UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED, R = RESULT IS REJECTED AND UNUSABLE

03/08/95 NAS WHITING - SITE 1467 - UST 12:56:06
ANALYTICAL REPORT

Lab Sample Number:	90127007			90128009			90125003			90127003		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHDUP3			WHF146728			WHF146729			WHF146731		
Collect Date:	28-AUG-93			29-AUG-93			27-AUG-93			28-AUG-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW	ug/l											
alpha-BHC	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
beta-BHC	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
delta-BHC	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
gamma-BHC (Lindane)	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Heptachlor	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Aldrin	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Heptachlor epoxide	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Endosulfan I	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Dieldrin	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
4,4-DDE	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
Endrin	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
Endosulfan II	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
4,4-DDD	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
Endosulfan sulfate	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
4,4-DDT	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
Methoxychlor	.5	U	ug/l	.5	.5	UJ	ug/l	.5	.5	U	ug/l	.5
Endrin ketone	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
Endrin aldehyde	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
alpha-Chlordane	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
gamma-Chlordane	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Toxaphene	5	U	ug/l	5	5	UJ	ug/l	5	5	U	ug/l	5
Aroclor-1016	1	U	ug/l	1	1	UJ	ug/l	1	1	U	ug/l	1
Aroclor-1221	2	U	ug/l	2	2	UJ	ug/l	2	2	U	ug/l	2
Aroclor-1232	1	U	ug/l	1	1	UJ	ug/l	1	1	U	ug/l	1
Aroclor-1242	1	U	ug/l	1	1	UJ	ug/l	1	1	U	ug/l	1
Aroclor-1248	1	U	ug/l	1	1	UJ	ug/l	1	1	U	ug/l	1
Aroclor-1254	1	U	ug/l	1	1	UJ	ug/l	1	1	U	ug/l	1
Aroclor-1260	1	U	ug/l	1	1	UJ	ug/l	1	1	U	ug/l	1

Qualifiers: U = NOT DETECTED, J = ESTIMATED VALUE, UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED, R = RESULT IS REJECTED AND UNUSABLE

03/08/95 NAS WHITING - SITE 1467 - UST 12:56:06
ANALYTICAL REPORT

Lab Sample Number:	90128005	90127001			90128004			90125004				
Site	WHITING	WHITING			WHITING			WHITING				
Locator	WHF146732	WHF146733			WHF14672D			WHF14675D				
Collect Date:	29-AUG-93	28-AUG-93			29-AUG-93			27-AUG-93				
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW ug/l												
alpha-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
beta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
delta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
gamma-BHC (Lindane)	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Aldrin	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Heptachlor epoxide	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Endosulfan I	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Dieldrin	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDE	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Endrin	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan II	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDD	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan sulfate	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDT	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Methoxychlor	.5	UJ	ug/l	.5	.5	U	ug/l	.5	.5	UJ	ug/l	.5
Endrin ketone	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Endrin aldehyde	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
alpha-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
gamma-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Toxaphene	5	UJ	ug/l	5	5	U	ug/l	5	5	UJ	ug/l	5
Aroclor-1016	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1221	2	UJ	ug/l	2	2	U	ug/l	2	2	UJ	ug/l	2
Aroclor-1232	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1242	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1248	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1254	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1260	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1

Qualifiers: U = NOT DETECTED, J = ESTIMATED VALUE, UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED, R = RESULT IS REJECTED AND UNUSABLE

03/08/95 NAS WHITING - SITE 1467 - UST 12:56:06
 ANALYTICAL REPORT

Lab Sample Number:	90125005	90128007
Site	WHITING	WHITING
Locator	WHF14676D	WHF14677D
Collect Date:	27-AUG-93	29-AUG-93

	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
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CLP PESTICIDES/PCBS 90-SOW

ug/l

alpha-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05
beta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05
delta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05
gamma-BHC (Lindane)	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Heptachlor	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Aldrin	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Heptachlor epoxide	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Endosulfan I	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Dieldrin	.1	UJ	ug/l	.1	.1	U	ug/l	.1
4,4-DDE	.1	UJ	ug/l	.1	.1	U	ug/l	.1
Endrin	.1	UJ	ug/l	.1	.1	U	ug/l	.1
Endosulfan II	.1	UJ	ug/l	.1	.1	U	ug/l	.1
4,4-DDD	.1	UJ	ug/l	.1	.1	U	ug/l	.1
Endosulfan sulfate	.1	UJ	ug/l	.1	.1	U	ug/l	.1
4,4-DDT	.1	UJ	ug/l	.1	.1	U	ug/l	.1
Methoxychlor	.5	UJ	ug/l	.5	.5	U	ug/l	.5
Endrin ketone	.1	UJ	ug/l	.1	.1	U	ug/l	.1
Endrin aldehyde	.1	UJ	ug/l	.1	.1	U	ug/l	.1
alpha-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05
gamma-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Toxaphene	5	UJ	ug/l	5	5	U	ug/l	5
Aroclor-1016	1	UJ	ug/l	1	1	U	ug/l	1
Aroclor-1221	2	UJ	ug/l	2	2	U	ug/l	2
Aroclor-1232	1	UJ	ug/l	1	1	U	ug/l	1
Aroclor-1242	1	UJ	ug/l	1	1	U	ug/l	1
Aroclor-1248	1	UJ	ug/l	1	1	U	ug/l	1
Aroclor-1254	1	UJ	ug/l	1	1	U	ug/l	1
Aroclor-1260	1	UJ	ug/l	1	1	U	ug/l	1

Qualifiers: U = NOT DETECTED, J = ESTIMATED VALUE, UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED, R = RESULT IS REJECTED AND UNUSABLE

03/08/95 NAS WHITING - SITE 1467 - UST 11:00:13
ANALYTICAL REPORT

Lab Sample Number:	90128010			90125006			90128003			90121004		
Site Locator	WHITING			WHITING			WHITING			WHITING		
Collect Date:	29-AUG-93			27-AUG-93			29-AUG-93			26-AUG-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE ug/l												
Aluminum	7250	ug/l	200		2600 J	ug/l	200		22500	ug/l	200	
Antimony	11.7 U	ug/l	60		12.5 J	ug/l	60		11.7 U	ug/l	60	
Arsenic	1.4 U	ug/l	10		12 J	ug/l	10		1.4 U	ug/l	10	
Barium	35.6 J	ug/l	200		78.7 J	ug/l	200		56.8 J	ug/l	200	
Beryllium	.46 J	ug/l	5		.15 U	ug/l	5		1.6 J	ug/l	5	
Cadmium	4.5 J	ug/l	5		2.9 U	ug/l	5		2.9 U	ug/l	5	
Calcium	908 J	ug/l	5000		20700	ug/l	5000		5850	ug/l	5000	
Chromium	26.4	ug/l	10		7 J	ug/l	10		84	ug/l	10	
Cobalt	4.9 J	ug/l	50		1.9 UJ	ug/l	50		3.4 J	ug/l	50	
Copper	43.1	ug/l	25		22.6 J	ug/l	25		33.3 J	ug/l	25	
Iron	64300	ug/l	100		33300	ug/l	100		58000	ug/l	100	
Lead	4.8	ug/l	5		107	ug/l	5		6.3	ug/l	5	
Magnesium	999 J	ug/l	5000		3170 J	ug/l	5000		1800 J	ug/l	5000	
Manganese	79.9	ug/l	15		605	ug/l	15		137	ug/l	15	
Mercury	.11 U	ug/l	.2		.04 U	ug/l	.2		.24 U	ug/l	.2	
Nickel	8.7 U	ug/l	40		14.2 J	ug/l	40		8.7 U	ug/l	40	
Potassium	788 U	ug/l	5000		17900	ug/l	5000		4400 J	ug/l	5000	
Selenium	2.1 U	ug/l	5		2.1 UJ	ug/l	5		2.1 U	ug/l	5	
Silver	1.6 U	ug/l	10		1.6 U	ug/l	10		1.6 U	ug/l	10	
Sodium	5030	ug/l	5000		54200	ug/l	5000		4450 J	ug/l	5000	
Thallium	1 UJ	ug/l	10		1 UJ	ug/l	10		1 UJ	ug/l	10	
Vanadium	53.3	ug/l	50		4.4 J	ug/l	50		196	ug/l	50	
Zinc	74.6 J	ug/l	20		186	ug/l	20		81.6 J	ug/l	20	
Cyanide	-	ug/l	-		-	ug/l	-		-	ug/l	-	

Qualifiers: U = NOT DETECTED, J = ESTIMATED VALUE, UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED, R = RESULT IS REJECTED AND UNUSABLE

03/08/95 NAS WHITING - SITE 1467 - UST 11:00:13
ANALYTICAL REPORT

Lab Sample Number:	90128008			90125002			90128006			90127002		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF146724			WHF146725			WHF146726			WHF146727		
Collect Date:	29-AUG-93			27-AUG-93			29-AUG-93			28-AUG-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE	ug/l											
Aluminum	14800	ug/l	200		12900	J	ug/l	200	12400	ug/l	200	1590
Antimony	11.7	U	ug/l	60	11.7	U	ug/l	60	11.7	U	ug/l	60
Arsenic	4.3	J	ug/l	10	3.1	J	ug/l	10	17.2	ug/l	10	3.2
Barium	52.2	J	ug/l	200	58.2	J	ug/l	200	58.3	J	ug/l	200
Beryllium	.79	J	ug/l	5	.76	J	ug/l	5	.33	J	ug/l	5
Cadmium	2.9	U	ug/l	5	2.9	U	ug/l	5	3.1	J	ug/l	5
Calcium	9840	ug/l	5000		8980	ug/l	5000		3950	J	ug/l	5000
Chromium	46	ug/l	10		52.9	ug/l	10		35.9	ug/l	10	5.1
Cobalt	5.1	J	ug/l	50	1.9	UJ	ug/l	50	30.1	J	ug/l	50
Copper	22.3	J	ug/l	25	30.8	ug/l	25		18.4	J	ug/l	25
Iron	78300	ug/l	100		45400	ug/l	100		64200	ug/l	100	5770
Lead	.16	ug/l	5		9.3	ug/l	5		481	ug/l	5	9.2
Magnesium	3520	J	ug/l	5000	3530	J	ug/l	5000	2610	J	ug/l	5000
Manganese	241	ug/l	15		21.4	ug/l	15		153	ug/l	15	15.3
Mercury	.16	U	ug/l	.2	.25	ug/l	.2		.19	U	ug/l	.2
Nickel	8.7	U	ug/l	40	8.7	U	ug/l	40	17.9	J	ug/l	40
Potassium	3170	J	ug/l	5000	1360	J	ug/l	5000	2740	J	ug/l	5000
Selenium	2.1	U	ug/l	5	2.1	UJ	ug/l	5	2.1	U	ug/l	5
Silver	1.6	U	ug/l	10	1.6	U	ug/l	10	1.6	U	ug/l	10
Sodium	2960	J	ug/l	5000	3330	J	ug/l	5000	4000	J	ug/l	5000
Thallium	1	UJ	ug/l	10	1	UJ	ug/l	10	1	UJ	ug/l	10
Vanadium	80	ug/l	50		112	ug/l	50		53.8	ug/l	50	7
Zinc	46.4	J	ug/l	20	67.1	ug/l	20		66.9	J	ug/l	20
Cyanide	-	ug/l	-		-	ug/l	-		-	ug/l	-	ug/l

Qualifiers: U = NOT DETECTED, J = ESTIMATED VALUE, UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED, R = RESULT IS REJECTED AND UNUSABLE

03/08/95 NAS WHITING - SITE 1467 - UST 11:00:13
ANALYTICAL REPORT

Lab Sample Number:	90127007	90128009	90125003	90127003								
Site	WHITING	WHITING	WHITING	WHITING								
Locator	WHFDUP3	WHD146728	WHD146729	WHD146731								
Collect Date:	28-AUG-93	29-AUG-93	27-AUG-93	28-AUG-93								
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	
CLP METALS AND CYANIDE ug/l												
Aluminum	1000	ug/l	200	29200	ug/l	200	3380 J	ug/l	200	2530 J	ug/l	200
Antimony	11.7 U	ug/l	60	11.7 U	ug/l	60	11.7 U	ug/l	60	11.7 U	ug/l	60
Arsenic	2.6 J	ug/l	10	12.1	ug/l	10	4 J	ug/l	10	1.4 UJ	ug/l	10
Barium	61.7 J	ug/l	200	79.6 J	ug/l	200	39.1 J	ug/l	200	18.2 J	ug/l	200
Beryllium	.15 U	ug/l	5	1.1 J	ug/l	5	.21 J	ug/l	5	.15 U	ug/l	5
Cadmium	2.9 U	ug/l	5	17.2	ug/l	5	2.9 U	ug/l	5	4.6 J	ug/l	5
Calcium	6090	ug/l	5000	3780 J	ug/l	5000	2640 J	ug/l	5000	1010 J	ug/l	5000
Chromium	4.7 J	ug/l	10	62.8	ug/l	10	14.4	ug/l	10	9.6 J	ug/l	10
Cobalt	1.9 U	ug/l	50	4.6 J	ug/l	50	1.9 UJ	ug/l	50	1.9 UJ	ug/l	50
Copper	8.8 J	ug/l	25	60.3	ug/l	25	13.5 J	ug/l	25	8.5 J	ug/l	25
Iron	6020	ug/l	100	29300	ug/l	100	15400	ug/l	100	6810	ug/l	100
Lead	9.5	ug/l	5	128	ug/l	5	3.2	ug/l	5	9.3	ug/l	5
Magnesium	1220 J	ug/l	5000	1470 J	ug/l	5000	3270 J	ug/l	5000	582 J	ug/l	5000
Manganese	17.4	ug/l	15	64.1	ug/l	15	13.7 J	ug/l	15	11.9 J	ug/l	15
Mercury	.04 J	ug/l	.2	.17 U	ug/l	.2	.06 J	ug/l	.2	.08 J	ug/l	.2
Nickel	8.7 U	ug/l	40	25.9 J	ug/l	40	8.7 U	ug/l	40	8.7 U	ug/l	40
Potassium	877 J	ug/l	5000	1170 J	ug/l	5000	1780 J	ug/l	5000	788 U	ug/l	5000
Selenium	2.1 U	ug/l	5	2.1 U	ug/l	5	2.1 UJ	ug/l	5	2.1 UJ	ug/l	5
Silver	1.6 U	ug/l	10	1.6 U	ug/l	10	1.6 U	ug/l	10	1.6 U	ug/l	10
Sodium	3660 J	ug/l	5000	7410	ug/l	5000	1670 J	ug/l	5000	1980 J	ug/l	5000
Thallium	1 U	ug/l	10	1 UJ	ug/l	10	1 UJ	ug/l	10	1 UJ	ug/l	10
Vanadium	3.3 J	ug/l	50	146	ug/l	50	27.8 J	ug/l	50	15.9 J	ug/l	50
Zinc	31.3	ug/l	20	161 J	ug/l	20	45.7	ug/l	20	12.4 U	ug/l	20
Cyanide	-	ug/l	-	ug/l	-	ug/l	-	ug/l	-	ug/l	-	ug/l

Qualifiers: U = NOT DETECTED, J = ESTIMATED VALUE, UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED, R = RESULT IS REJECTED AND UNUSABLE

03/08/95 NAS WHITING - SITE 1467 - UST 11:00:13
ANALYTICAL REPORT

Lab Sample Number:	90128005			90127001			90128004			90125004		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF146732			WHF146733			WHF14672D			WHF14675D		
Collect Date:	29-AUG-93			28-AUG-93			29-AUG-93			27-AUG-93		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE	ug/l											
Aluminum	4090	ug/l	200		32.6 J	ug/l	200		566	ug/l	200	
Antimony	11.7 U	ug/l	60		11.7 U	ug/l	60		11.7 U	ug/l	60	
Arsenic	16.9	ug/l	10		1.4 UJ	ug/l	10		7.6 J	ug/l	10	
Barium	82.3 J	ug/l	200		.49 J	ug/l	200		41.5 J	ug/l	200	
Beryllium	.15 U	ug/l	5		.2 J	ug/l	5		.15 U	ug/l	5	
Cadmium	2.9 U	ug/l	5		2.9 U	ug/l	5		2.9 U	ug/l	5	
Calcium	1800 J	ug/l	5000		20 J	ug/l	5000		14700	ug/l	5000	
Chromium	25.6	ug/l	10		2.3 U	ug/l	10		2.3 U	ug/l	10	
Cobalt	1.9 U	ug/l	50		1.9 UJ	ug/l	50		1.9 U	ug/l	50	
Copper	22.3 J	ug/l	25		4.4 J	ug/l	25		19.9 J	ug/l	25	
Iron	33700	ug/l	100		7.9 J	ug/l	100		4750	ug/l	100	
Lead	67	ug/l	5		1.6 U	ug/l	5		44.2	ug/l	5	
Magnesium	801 J	ug/l	5000		16.8 U	ug/l	5000		1670 J	ug/l	5000	
Manganese	362	ug/l	15		.69 U	ug/l	15		140	ug/l	15	
Mercury	.14 U	ug/l	.2		.1 J	ug/l	.2		.12 U	ug/l	.2	
Nickel	8.7 U	ug/l	40		8.7 U	ug/l	40		8.7 U	ug/l	40	
Potassium	788 U	ug/l	5000		788 U	ug/l	5000		5650	ug/l	5000	
Selenium	2.1 U	ug/l	5		2.1 UJ	ug/l	5		2.1 U	ug/l	5	
Silver	1.6 U	ug/l	10		1.6 U	ug/l	10		1.6 U	ug/l	10	
Sodium	5120	ug/l	5000		9490	ug/l	5000		5580	ug/l	5000	
Thallium	1 UJ	ug/l	10		1 UJ	ug/l	10		1 UJ	ug/l	10	
Vanadium	47.5 J	ug/l	50		1.9 U	ug/l	50		1.9 U	ug/l	50	
Zinc	52.2 J	ug/l	20		4.4 U	ug/l	20		30.4 J	ug/l	20	
Cyanide	-	ug/l	-		ug/l	-	ug/l		ug/l	-	ug/l	

Qualifiers: U = NOT DETECTED, J = ESTIMATED VALUE, UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED, R = RESULT IS REJECTED AND UNUSABLE

03/08/95 NAS WHITING - SITE 1467 - UST 11:00:13
ANALYTICAL REPORT

Lab Sample Number:	90125005	90128007
Site	WHITING	WHITING
Locator	WHF146760	WHF14677D
Collect Date:	27-AUG-93	29-AUG-93

	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
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CLP METALS AND CYANIDE

ug/l

Aluminum	8460 J	ug/l	200	2950	ug/l	200
Antimony	11.7 U	ug/l	60	11.7 U	ug/l	60
Arsenic	8.5 J	ug/l	10	1.4 U	ug/l	10
Barium	92.8 J	ug/l	200	53.3 J	ug/l	200
Beryllium	.48 J	ug/l	5	.48 J	ug/l	5
Cadmium	2.9 U	ug/l	5	2.9 U	ug/l	5
Calcium	8270	ug/l	5000	1340 J	ug/l	5000
Chromium	24.9	ug/l	10	9.1 J	ug/l	10
Cobalt	3.6 J	ug/l	50	3.5 J	ug/l	50
Copper	47.2	ug/l	25	22.3 J	ug/l	25
Iron	76600	ug/l	100	6230	ug/l	100
Lead	43	ug/l	5	4.8	ug/l	5
Magnesium	2580 J	ug/l	5000	1230 J	ug/l	5000
Manganese	128	ug/l	15	19.7	ug/l	15
Mercury	.07 J	ug/l	.2	.11 U	ug/l	.2
Nickel	33.6 J	ug/l	40	8.7 U	ug/l	40
Potassium	13000	ug/l	5000	4210 J	ug/l	5000
Selenium	2.1 UJ	ug/l	5	2.1 U	ug/l	5
Silver	1.6 U	ug/l	10	1.6 U	ug/l	10
Sodium	3890 J	ug/l	5000	2390 J	ug/l	5000
Thallium	1 UJ	ug/l	10	1 UJ	ug/l	10
Vanadium	29.2 J	ug/l	50	16.7 J	ug/l	50
Zinc	251	ug/l	20	68.4 J	ug/l	20
Cyanide	-	ug/l	-	-	ug/l	-

Qualifiers: U = NOT DETECTED, J = ESTIMATED VALUE, UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED, R = RESULT IS REJECTED AND UNUSABLE

APPENDIX D

GROUNDWATER TURBIDITY DATA STATISTICAL ANALYSIS

RESULTS OF THE DETERMINATION OF ASSOCIATION BETWEEN TURBIDITY AND [Al] IN GW SAM. ES.

SITE GROUPING		Spearman's Coefficient (r_s)	Large Sample Approx. Statistic (t_s)	Sample Size (n)	P value	significant positive association?
<u>PERIMETER AREAS:</u>						
NORTHWEST SITES (Sites 1, 2, 17, 18)		0.95	3.15	12	0.0008	Yes
SOUTHWEST SITES (Sites 15, 16)	15)	0.87	N.A.	11		Yes
	16)	0.73	2.42	12	.0078	
SOUTHEAST SITES (Sites 9, 10, 11, 12, 13, 14)		0.90	3.37	15	0.0004	Yes
<u>INDUSTRIAL AREAS:</u>						
NORTHFIELD SITES (Sites 3, 4, 32)		0.87	3.69	19	.0001	Yes
MIDFIELD SITES (Sites 5, 6, 33)		0.87	3.26	15	.0006	Yes
SOUTHFIELD SITES (Sites 7, 8, 29, 30)		0.91	N.A.	11	.0001	Yes

Notes : P value = the significance probability (the smallest probability at which you can reject the null hypothesis)

$r_s = 1 - \frac{6 \sum d^2}{n^3 - n}$ = Spearman's correlation coefficient for establishing linear association between a pair of variables.

$r_s' = \sqrt{n-1} \cdot r_s$ = modified form of r_s used when sample size exceeds $n=11$.

NORTHFIELD SITE CROPPING.

SAMPLE WELL ID	Turbidity (NTU)	Rank	Al conc. (mg/kg)	Rank	d	d^2
WHF-3-1	6.7	2	48.8	2	0	0
WHF-3-15	301.1	13	195.0	6	7	49
WHF-3-1D	21.1	4	43.2	3	1	1
WHF-3-2	5.4	1	76.1	4	-3	9
WHF-3-2C	1428.0	17	10800.0	16	1	1
WHF-3-3C	296.0	12	3570.0	14	-2	4
WHF-3-3	16.52	3	328.0	7	-4	16
WHF-3-3S	571.0	14	3230.0	13	1	1
WHF-3-3D	41.3	5	455.0	8	-3	9
WHF-3-4	259.0	10	779.0	9	1	1
WHF-3-7S	272.0	11	1370.0	10	1	1
WHF-3-7C	77.6	7	87.7	5	2	4
WHF-3-7D	79.1	8	1400.0	11	-3	9
WHF-4-1	50.9	6	21.9	—	5	25
WHF-32-1	2200.0	18	53900.0	19	-1	1
WHF-32-2	140.3	9	1890.0	12	-3	9
WHF-32-3	1318.0	16	10400.0	15	1	1
WHF-32-4	765.0	15	40900.0	17	-2	4
WHF-32-5	4036.0	19	44700.0	18	1	1

$$\sum d^2 = 146$$

$$r_s = 1 - \frac{6 \sum d}{n(n-1)} = 1 - \frac{6(146)}{19(19-1)} = 0.87 \Rightarrow \text{a positive association.}$$

Statistical Testing

H_0 : $[Al]$ and Turbidity are unrelated.

For $n=19$ and $\alpha=.05$, r_s refer to large number approx. using:

$$t_k = \sqrt{n-1} \cdot r_s = \sqrt{19-1} \cdot (0.87) = 3.69$$

From the standard normal table, the $P_r(t_k = 3.69) = .0001$

Therefore $\alpha = .05 < .0001$.

Conclusions: There is a significant positive association between turbidity and $[Al]$ concentration at 99.99% level of testing in ~~in~~ our samples collected from the northfield RI wells.

SAMPLE WELL ID	MIDFIELD SITE GROUPING				d	d^2
	Turbidity (NTU)	Rank	Al conc. (mg/kg)	Rank		
WHF-5-3	8.86	1	189.0	2	-1	1
WHF-5-8S	1641.0	14	29500.0	14	0	0
WHF-5-2D	104.4	5	4340.0	7	-2	4
WHF-5-9S	362.0	8	952.0	6	2	4
WHF-5-9D	190.2	6	359.0	3	3	9
WHF-5-10S	29.5	3	746.0	5	-2	4
WHF-5-10D	32.6	4	444.0	4	0	0
WHF-6-1S	233.4	7	18000.0	13	-6	36
WHF-6-1D	17.08	2	21.0	1	1	1
WHF-6-3	1068.8	10	9580.0	11	-1	1
WHF-33-1	1156.0	13	10700.0	12	1	1
WHF-33-2	1085.0	12	4360.0	8	4	16
WHF-33-3	1084.0	11	4770.0	9	2	4
WHF-33-4	832.0	9	5550.0	10	-1	1
WHF-33-5	1984.0	15	45700.0	15	0	0

For $n = 15$

$$r_s = 1 - \frac{6 \sum d^2}{n^3 - n} = 1 - \frac{6(73)}{15^3 - 15} = 0.87$$

$$\sum d^2 = 73$$

Statistical testing

H_0 : [Al] and turbidity are unrelated

For $n = 15$ and $\alpha = 0.05$, refer r_s to the large number approximation using:

$$r_I = \sqrt{n-1} \cdot r_s = \sqrt{(15-1)} \cdot r_s = \sqrt{14} \cdot (0.87) = 3.26$$

From the standard normal table, the $Pr(r_I \geq 3.26) = 0.0006$

Thus $\alpha = 0.05 \ll 0.0006$.

at 99.9% level

Conclusion: There is a significant positive association between [Al] and turbidity in gw samples collected from the midfield RI wells.

SAMPLE WELL ID	SCOTTFIELD ID	Turbidity (NTU)	SITE GROUPING		Al conc. (mg/kg)	Rank	<u>d</u>	<u>d</u> ²
			Rank	AI conc. (mg/kg)				
WHF- 7 - 1		325.0	-	3	81.5	2	1	1
WHF- 8 - 1		2.0	-	1	41.3	1	0	0
WHF- 29 - 1		2598.0	-	10	32400.0	11	-1	-1
WHF- 29 - 2		5105.0	-	11	49400.0	10	1	1
WHF- 29 - 3		654.0	-	9	5590.0	8	1	1
WHF- 29 - 4		632.0	-	7.5	3320.0	-	5	2.5
WHF- 29 - 5		584.0	-	6	4480.0	-	7	-1
WHF- 30 - 2		321	-	2	549.0	-	3	-1
WHF- 30 - 3		632.0	-	7.5	6870.0	9	-2.5	6.25
WHF- 30 - 4		442.0	-	4	2610.0	4	0	0
WHF- 30 - 5		526.0	-	5	3890.0	6	-1	1
WHF-								
WHF-								

$$r_s = 1 - \frac{6 \sum d^2}{n^3 - n} = 1 - \frac{6(19.5)}{11^3 - 11} = 0.91$$

$$\sum d^2 = 19.50$$

Statistical Testing

H_0 : [Al] and Turbidity, are unrelated.

Decision Rule: Reject H_0 if $r_s \geq 0.527$

Accept H_0 if $r_s < 0.527$

For $n=11$, Refer r_s to $\Pr(r_s \geq 0.527) = 0.05$

$r_s = 0.91 >> 0.05 \therefore H_0$ is rejected at 95% test level

Conclusion: There is a signif. positive association between [Al] and turbidity in gw samples collected from the southfield PI wells.

SAMPLE WELL ID	NORTHWEST SITE Turbidity (NTU)	Rank	GROUPING		Rank	<u>d</u>	<u>d</u> ²
			Al conc. (mg/kg)				
WHF- 1 - 1S	2780.0	11	30700.0	11	0	0	0
WHF- 1 - 1	3.92	3	132.0	3	0	0	0
WHF- 1 - 2	5888.0	12	61700.0	12	0	0	0
WHF- 1 - 3	1390.0	10	10800.0	7	3	9	81
WHF- 2 - 1	1208.0	7	12700.0	8	-1	1	1
WHF- 17 - 1S	509.0	5	5630.0	5	0	0	0
WHF- 17 - 1	2.58	1	50.9	1	0	0	0
WHF- 17 - 2S	257.0	4	2080.0	4	0	0	0
WHF- 17 - 3	1241.0	8	15400.0	10	-2	4	16
WHF- 18 - 1	2.97	2	68.4	2	0	0	0
WHF- 18 - 2S	1370.0	9	13700.0	9	0	0	0
WHF- 18 - 3	1192.0	6	10200.0	6	0	0	0
WHF- 18 -							

$$\sum d^2 = 14$$

$$r_s = 1 - \frac{6 \sum d^2}{12^2 - 12} = 1 - \frac{6(14)}{1728 - 12} = 1 - .05 = 0.95 \Rightarrow \text{a very high positive correlation.}$$

Testing r_s .

H_0 : [al] and turbidity are independent.

For $n = 12$, use the large sample approximation:

$$\text{where } r_t = \sqrt{n-1} \cdot r_s = \sqrt{12-1} \cdot (0.95) = 3.15$$

Signif. large values of $r_t \Rightarrow$ positive association.
 " small " " $r_t \Rightarrow$ negative "

The standard normal probability associated with $\Pr(r_t \geq 3.15) = .0008$.

Therefore, $P = .0008 \ll 0.05 \Rightarrow$ the result does not support the H_0 .

Conclusion: There is a significant, positive association between [al] and turbidity in gw samples collected from the northwest area.
(at 99.9%)

SITE 15: SOUTHWEST SITE GROUPING.

<u>Sample Well #</u>	<u>Turbidity (NTU)</u>	<u>Rank</u>	<u>Al conc. (mg/kg)</u>	<u>Rank</u>	<u>d</u>	<u>d^2</u>
WHF-15-1	1.81	3	24.5	3	0	0
WHF-15-2S	1348.0	11	76400.0	11	0	0
WHF-15-2I	6.53	4	39.2	4	0	0
-15-2D	17.05	6	77.2	6	0	0
-15-3S	1025.0	10	10600.0	10	0	0
-15-3I	10.64	5	19.9	1.5	3.5	12.25
-15-3D	1.79	2	19.9	1.5	0.5	0.25
15-4	534.0	8	3350.0	8	0	0
15-5	44.2	7	519.0	7	0	0
15-6S	786.0	9	9990.0	9	0	0
15-6D	1.05	1	43.0	5	-4	16
						$\sum d^2 = 28.50$

d = difference between the two ranks/well.

d^2 = square of d .

n = sample size.

Calculate Spearman's rank correlation coeff.:

$$\gamma_s = 1 - \frac{6 \sum d^2}{n^3 - n} = 1 - \frac{6(28.5)}{11^3 - 11} = 1 - 0.13 = 0.87$$

0.87 being close to 1.0 \Rightarrow a strong positive association between Al conc. and turbidity at Site 15.

Testing stat. Signif. of γ_s

Refer γ_s to Prob. of null distrib. of γ_s for $n=11$

H_0 : No association between [Al] and turb.

$\rightarrow \Pr(\gamma_s \geq 0.527) = 0.05$ for $n=11$

Decision rule: Reject H_0 if $\gamma_s \geq .527$, accept H_0 if $\gamma_s < 0.527$.

Conclusion: The calculated $\gamma_s = 0.87 \geq$ the critical $\gamma_s = 0.527$, and $\therefore H_0$ claiming lack of association is rejected. Therefore, there is a positive association between [Al] and turbidity at Site 15 at the 95% level of significance.

SAMPLE WELL ID	Turbidity (NTU)	SITE 16 : SOUTHWEST SITE GROUPING				d	d^2
		Rank	Al conc. (mg/kg)	Rank			
WHF-16-1	-	1.58	2	27.2	2	0	0
WHF-16-2	-	5.28	4	178.0	5	-1	1
WHF-16-2S	-	1381.00	11	12400.0	10	1	1
WHF-16-23	-	0.98	1	25.1	1	0	0
WHF-16-3S	-	479.0	10	85500.0	11	-1	1
WHF-16-3T	-	42.3	6	82600.0	12	-6	36
WHF-16-3D	-	2528.0	12	552.0	6	6	36
WHF-16-3D	-	114.0	8	1370.0	8	0	0
WHF-16-4S	-	320.0	9	6280.0	9	0	0
WHF-16-4T	-	10.66	5	111.0	4	1	1
WHF-16-4D	-	46.6	7	779.0	7	0	0
WHF-16-5	-	3.85	3	64.8	3	0	0
WHF-16-							

$$\tau_s = 1 - \frac{6 \sum d^2}{n^3 - n} = 1 - \frac{6(76)}{12^3 - 12} = 1 - \frac{456}{1728 - 12} = 1 - 0.26 = 0.73$$

$0.73 \Rightarrow$ a positive association between [Al] and turbidity

Testing τ_s

Refer is to null distribution of τ_s for $n=12$ (None available for $n=12$)

H_0 : [Al] and turbidity are not related at Site 16

$\rightarrow \Pr(\tau_s = ?) = ?$ for $n=12$, we use the large sample approximation for $n > 11$.

We test a modified form of τ_s and refer to the standard normal distribution for significance testing:

$$\text{For } \tau_s = 0.73, n=12, \quad \tau_k = \sqrt{n-1} \cdot \tau_s = \sqrt{12-1} \cdot (0.73) = 2.421$$

Signif. large values of $\tau_k \Rightarrow$ positive association.

" small " . $\tau_k \Rightarrow$ negative " .

The standard normal probability associated with $\tau_k = 2.421 = 0.0078$

Therefore, $P = 0.0078 < 0.05 \Rightarrow$ the result (τ_s) does not support the null hypothesis (H_0).

(at the 99% level)

Conclusion. There is a significant, positive association between [Al] and turbidity in geyser samples collected at Site 16.

<u>SAMPLE WELL ID</u>	<u>SOUTHEAST SITE</u>	<u>GROUPING</u>	<u>Turbidity (NTU)</u>	<u>Rank</u>	<u>AI conc. (mg/kg)</u>	<u>Rank</u>	<u>d</u>	<u>d'</u>
WHF-9 - 1			12.7	5	2310	7	-2	4
WHF-9 - 2			27.7	8	5840.0	11	-3	9
WHF-9 - 3S			612.0	13	3190.0	10	3	2
WHF-10 - 1			0.96	1	29.5	1	0	0
WHF-10 - 2			41.0	9	674.0	8	1	1
WHF-11 - 1			2.77	3	69.8	4	-1	1
WHF-11 - 1S			606.80	12	16400.0	14	-2	4
WHF-11 - 2			167.90	11	5860.0	12	-1	1
WHF-11 - 3			799.0	14	24000.0	15	-1	1
WHF-12 - 1			14.61	6	44.9	2	4	16
WHF-13 - 1			6.57	4	100.0	5	-1	1
WHF-13 - 1S			864.0	15	8740.0	13	2	4
WHF-13 - 2			19.3	7	111.0	6	1	1
WHF-14 - 1			2.59	2	63.3	3	-1	1
WHF-14 - 2			103.40	10	1760.0	9	1	1

$$r_s = 1 - \frac{6 \sum d^2}{15^3 - 15} = 1 - \frac{6(54)}{3360} = 0.90 \Rightarrow \text{high positive correlation.}$$

Testing Ys

Let H_0 : [a1] and turbidity are independent.

For $n = 115$, use the large sample approximation:

$$\text{Where } T_e = \sqrt{n-1} \cdot T_s = \sqrt{15-1} (0.90) = 3.37$$

Signif large values of $r_s \Rightarrow$ positive association
 " small " " " " \Rightarrow negative "

Refer to the standard normal probability associated with $t_1 = 3.37$.

$$\Pr(r_i \geq 337) = 0.0004$$

$P = 0.0004$ indicates that the result does not support the H_0 .

Conclusion: There is a signif. positive correlation at the 99.96% level of significance between turbidity and [al] in the gw samples collected from the wells located in the northeast perimeter sites.